

## **RECORD OF DECISION**

For the DesertXpress Enterprises, LLC  
High-Speed Passenger Train Project

DesertXpress Enterprises, LLC  
High-Speed Passenger Train Project  
Decision to Grant Right-of-Way

Case File Numbers: CACA-48497  
and NVN-82673

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## **List of Acronyms**

AO: Authorized Officer  
BFO: Barstow Field Office  
BLM: Bureau of Land Management  
BO: Biological Opinion  
Caltrans: California Department of Transportation  
CDCA: California Desert Conservation Area  
CEQ: Council on Environmental Quality  
CWA: Clean Water Act  
DEMU: Diesel-Electric Multiple Unit Train  
DOI: United States Department of Interior  
DXE: DesertXpress Enterprises, LLC  
EIS: Environmental Impact Statement  
EMU: Electric Multiple Unit Train  
EPA: Environmental Protection Agency  
ESA: Endangered Species Act  
FHWA: Federal Highway Administration  
FLPMA: Federal Land Policy and Management Act  
FRA: Federal Railroad Administration  
I-15: Interstate 15  
MOW: Maintenance of Way  
MSF: Maintenance and Storage Facility  
NDOT: Nevada Department of Transportation  
NEPA: National Environmental Policy Act  
NHPA: National Historic Preservation Act  
NOA: Notice of Availability  
NOI: Notice of Intent  
NTP: Notice to Proceed  
OMSF: Operations, Maintenance, and Storage Facility  
PA: Programmatic Agreement  
POD: Plan of Development  
RMP: Resource Management Plan  
ROD: Record of Decision  
ROW: Right-of-Way  
SHPO: State Historic Preservation Officer  
STB: Surface Transportation Board  
UPRR: Union Pacific Railroad  
US: United States  
USACE: United States Army Corps of Engineers  
USFWS: United States Fish and Wildlife Service  
VV: Victorville  
WEMO: Western Mojave Desert Off Road Vehicle Designation

## **Executive Summary**

This document constitutes the Record of Decision (ROD) of the United States Department of the Interior (DOI) and Bureau of Land Management (BLM) for the DesertXpress High-Speed Passenger Train Project.

It is the decision of the BLM to authorize a Right-of-Way (ROW) grant for the construction, operation, maintenance, and termination of the proposed DesertXpress High-Speed Passenger Train Project on approximately 972 acres of public lands in San Bernardino County, California, and Clark County Nevada.

This decision is based upon the March 2011 Final Environmental Impact Statement and Final Section 4(f) Evaluation (Final EIS) prepared by the Federal Railroad Administration (FRA). The Notice of Availability for this Final EIS was published in the Federal Register on April 1, 2011. The BLM, along with the Federal Highway Administration and the Surface Transportation Board were Cooperating Agencies in the FRA's EIS process. This ROD provides the basis for issuing a ROW grant under Title V of the Federal Land Policy and Management Act (FLPMA) of 1976. The ROW will be granted to DesertXpress Enterprises, LLC (DXE), and will authorize the construction, operation, maintenance, and termination of the DesertXpress High-Speed Passenger Train Project (DesertXpress Project) that was analyzed in the Final EIS as the Agency Preferred Alternative, and which is also referred to as the Selected Alternative in this ROD.

This decision reflects careful consideration of the information generated from the DesertXpress Project environmental review process, and further reflects resolution of the issues brought to the BLM through such process.

This ROD applies only to BLM-administered lands, and to the BLM's decision on the DesertXpress Project. Other agencies, including the FRA and each Cooperating Agency are responsible for issuing their own decisions and applicable authorizations for the DesertXpress Project.

### ***ES.1 Executive Summary of Decision Rationale***

This decision fulfills applicable requirements for managing public lands. The stipulations in the grant ensure that authorization of the DesertXpress Project will protect environmental resources and comply with environmental standards. This decision reflects careful balancing of many competing public interests in managing public lands. This decision is based on comprehensive environmental analysis and full public involvement. The FRA, BLM, and other Cooperating Agencies engaged highly qualified technical experts to analyze the environmental effects of the DesertXpress Project. During the scoping process and following the publication of the Draft Environmental Impact Statement, the Supplemental Draft Environmental Impact Statement and the Final Environmental Impact Statement, members of the public submitted comments that enhanced the FRA and BLM consideration of many environmental issues relevant to this project. The BLM, U.S. Fish and Wildlife Service, National Park Service and other consulted agencies used their expertise and existing technology to address the important

issues of environmental resource protection. The BLM and other DOI agencies worked together to make sure that all practicable mitigation measures which avoid or minimize environmental harm have been adopted.

# **1. Decision**

## ***1.1. Background***

This Record of Decision (ROD) approves the construction, operation, maintenance, and termination of the DesertXpress High-Speed Passenger Train Project (DesertXpress Project) on public lands in San Bernardino County, California, and Clark County, Nevada. This Project has been analyzed in the DesertXpress Project Final Environmental Impact Statement and Final Section 4(f) Evaluation (Final EIS) issued on April 1, 2011, the date of the Federal Railroad Administration's Notice of Availability. In this decision, the Bureau of Land Management (BLM) approves the DesertXpress Project Agency Preferred Alternative as identified and analyzed in the Final EIS. The Agency Preferred Alternative is also referred to as the Selected Alternative in this ROD.

The Federal Railroad Administration (FRA), with the Bureau of Land Management as a cooperator, prepared an EIS for the DesertXpress Project. This EIS addressed potential project impacts on BLM-managed lands. In conformance with 40 C.F.R. 1506.3(a) and (c), the BLM is adopting the EIS, and has prepared a separate ROD for the necessary approval for the use of BLM-managed lands. The FRA's action was approved in a ROD on July 8, 2011. The FRA ROD and EIS are available on the FRA's website at: <http://www.fra.dot.gov/rpd/freight/1703.shtml>.

This approval will take the form of a Federal Land Policy and Management Act (FLPMA) right-of-way (ROW) grant, issued in conformance with Title V of FLPMA and implementing regulations found at 43 C.F.R. Part 2800. The decision contained herein applies only to the BLM-administered public lands within the Selected Alternative.

The ROW grant will be issued to DesertXpress Enterprises, LLC (DXE) for a term of 30 years with a right of renewal so long as the lands are being used for the purposes specified in the grant. DXE may, on approval from the BLM, assign the ROW grant to another party in conformance with 43 C.F.R. 2807.21.

The ROW grant will provide DXE the right to use, occupy, and develop public lands to construct, operate, maintain, and terminate a grade-separated, dedicated double track, Electrical Multiple Unit passenger train system in San Bernardino County, California and Clark County, Nevada, as identified and evaluated in the Final EIS. The project site is principally within the Interstate 15 (I-15) highway corridor from Victorville, California, to Las Vegas, Nevada, and is partially within BLM-designated energy production and utility corridors. The exact location of the project site can be found in Appendix A of this ROD.

The BLM's decision is conditioned on compliance with this ROD, implementation of the terms, conditions and stipulations of the ROW grant (including mitigation measures and monitoring programs), compliance with the Biological Opinion (BO) issued by the United States Fish and Wildlife Service (USFWS), compliance with the National Historic Preservation Act (NHPA) Section 106 Programmatic Agreement (PA), and the issuance of all other necessary local, state, and federal approvals, authorizations, and permits.



Construction of the project may be phased so long as the initiation of project construction occurs within 24 months of the issuance of a ROW grant. Initiation of construction approval will be recognized through a BLM issued Notice to Proceed (NTP) for each phase or partial phase of construction. Once started, the project should be constructed within a period of approximately 60 months, achievable through simultaneous construction on multiple segments. If the approved project does not progress to construction and operation, or is proposed to be changed substantially, consistent with the stipulations attached herein, any BLM authorizations may be suspended or terminated, and the project may be subject to additional review under the National Environmental Policy Act (NEPA).

DesertXpress will be utilizing a design-build process to complete the project. The design-build process involves the applicant first submitting design documents that are sufficient for agency analysis and review of the proposed project impacts. DXE has submitted the necessary design documents, including a Plan of Development (POD) and engineered plan and profile drawings detailing the length, width, and location of facilities<sup>1</sup>; and construction drawings detailing construction methods to be used. These construction drawings also identify and describe facility locations; track and centenary layout; elevated, at-grade and below grade typical crossings; and cut and fill locations. Through the review of these project plans, BLM was able to assess the project impacts and issue this ROD and the subsequent ROW grant.

The second principle step in the design-build process is the submittal by DXE of more refined project engineering and design documents. The submittal of these documents will occur after this initial ROD and grant, and throughout the phased construction of the project. The authorizing agencies recognize that more refined engineering and project design may be necessary as project construction progresses through multiple phases. Each phase will require a Notice to Proceed (NTP) from the BLM before ground-disturbing activity can occur. Each time DXE requests a NTP, the BLM will require a bond and reclamation cost estimate. When the BLM receives any refined information regarding a particular phase of the project, the BLM will assess the information to determine whether it is within the scope of the current authorized project and related EIS analysis, and if so, evaluate the information to decide if a NTP should be issued. If the refined information varies too far from the original proposal or EIS analysis, the BLM will determine if the ROW grant must be modified or additional NEPA analysis is necessary before a NTP can be issued.

In close correlation to review of refined information, upon completion of more detailed design or engineering plans for the rail line, the FRA will re-assess the amount of temporary and permanent disturbance and undisturbed but isolated fragments of habitat. If the amount of disturbance and isolated habitat exceeds the amount analyzed in the biological opinion to a degree that the overall effects upon the desert tortoise and its critical habitat trigger the re-initiation criteria defined at 50 C.F.R. 402.16, the FRA will re-

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<sup>1</sup> In addition to the double-track passenger rail system, the project facilities included the construction, operation, and maintenance of passenger stations, maintenance facilities, autotransformers and substations, electrical distribution lines, and temporary construction areas.

initiate formal consultation. If the FRA's re-assessment reveals new effects that can be adequately addressed through additional protective measures (e.g., additional culverts to reduce fragmentation, etc.), any additional consultation required may be addressed through the Service's written concurrence. BLM may require additional information prior to issuance of NTPs, such as additional surveys, protective measures, or input from other agencies, to ensure that the terms and conditions of the Biological Opinion are being met.

This process is described further in Section 1.4.1, Post-approval Siting Conformance Process.

### **1.1.1. Application/Applicant**

On August 22, 2006, DesertXpress Enterprises, LLC submitted separate Standard Form 299 ROW applications with the BLM Barstow, California Field Office, the Needles, California Field Office, and Las Vegas, Nevada Field Office. These separate applications were necessary, as different portions of the project passed through three different field offices' jurisdictions. The BLM Barstow Field Office is the designated lead BLM office for the overall application process. The BLM will be issuing a single ROW grant for the entire project. The BLM California State Director will sign the ROD and grant for BLM California and BLM Nevada. The BLM Barstow Field Office will administer that grant.

### **1.1.2. Purpose and Need**

DXE has proposed this project to address increasing public transportation needs between Victorville, California and Las Vegas, Nevada. As identified in the Final EIS, the purpose for the DesertXpress project is to provide reliable and safe passenger rail transportation using proven high-speed rail technology between Victorville, California and Las Vegas, Nevada that is a convenient alternative to automobile or air travel, and adds transportation capacity in the I-15 corridor.

Although not explicitly mentioned in the Purpose and Need of the EIS, the BLM participated as a cooperating agency in order to respond to DXE's application submitted under Title V of the FLPMA for a ROW grant to construct, operate, maintain, and terminate a passenger train system on public lands in compliance with FLPMA, BLM Right of Way regulations, and other federal laws. The Alternative selected meets the purpose and need for the DesertXpress Project.

### **1.1.3. EIS Availability, Review Periods, Comments**

In March 2009, the FRA, in coordination with the Cooperating Agencies, published a Draft EIS and circulated the document for a 56-day public and agency review and comment period. Following publication of the Draft EIS, the project applicant proposed several modifications and additions based upon substantive comments received during the public and agency review period. These adjustments were meant to reduce or avoid potentially significant environmental effects. As these proposed modifications and additions were determined to represent significant new information, they were analyzed in a Supplemental Draft EIS, published by the FRA and the Cooperating Agencies in

September 2010, and circulated for a 46-day public and agency review and comment period.

The Final EIS was published April 1, 2011 and made available for a 30-day public review and comment period from April 1, 2011 to May 2, 2011. The additional comment period was appropriate because the Final EIS identified a preferred alternative for the first time. This comment period gave the public an opportunity to provide input on the preferred alternative before a final decision was made. The comments that were submitted on the Final EIS were reviewed and taken into consideration when drafting this ROD. These comments were primarily directed towards the FRA and were addressed accordingly. Several comments resulted in the modification of Mitigation Measures LU-1 and LU-2 in the FRA ROD. The BLM has accepted these changes as well. The additional comments on the Final EIS were not considered significant and did not create the need for additional NEPA supplementation. Detailed responses are included in Appendix C of this ROD.

After issuing this ROD, the BLM will publish a Notice of Availability of the ROD in the Federal Register. Copies of the Final EIS, dated March 2011, are available at the BLM Barstow Field Office (2801 Barstow Road, Barstow, California 92311), the BLM California Desert District Office (22835 Calle San Juan de Los Lagos, Moreno Valley, California 92553), and the Southern Nevada District Office (4701 N. Torrey Pines Dr., Las Vegas, NV 89130). The Final EIS is also available online from the FRA website.

#### **1.1.4. BLM Authority under FLPMA and NEPA**

##### **Federal Land Policy and Management Act of 1976 (FLPMA)**

FLPMA establishes policies and procedures for management of public lands. In Section 102(a)(8) of FLPMA, Congress declared that it is the policy of the United States that:

*[T]he public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use (43 U.S.C. Part 1701(a)(8)).*

Section 202 of FLPMA, and the regulations implementing this portion of FLPMA (43 C.F.R. Subparts 1601 and 1610), provide a process for development and implementation of, and conformity with, land use plans which guide the use of the public lands.

Title V of the FLPMA, 43 U.S.C. 1761-1771, provides the authority for the issuance of a ROW grant on, over, under, and through the public lands for railroads, roads, transmission, and distribution of electric energy, systems for transmission or reception of radio, telephone, and other electronic signals, and other means of communication.

Implementation of the statutory authority for ROW authorizations is detailed in the 43 C.F.R. Part 2800 regulations. The BLM Authorized Officer (AO) administers the ROW grant and ensures compliance with its terms and conditions. The AO is any employee of Department of Interior (DOI) to whom the authority to perform the duties described in 43 C.F.R. Part 2800 has been delegated. This authority is derived from the authority of the

Secretary of the Interior, and may be revoked at any time. The authority to approve all actions pertaining to the granting and management of Title V ROWs on public lands is delegated to the respective BLM State Directors (BLM Manual 1203, Appendix 1, p.61). For multistate grants, such as this one, the BLM will designate a Lead State. All actions pertaining to the granting and management of that ROW grant is delegated to the State Director of that state and cannot be re-delegated. The BLM California State Office has been designated the Lead State, and the BLM California State Director will serve as the AO.

### **BLM Land Use Plans**

In furtherance of its authority under FLPMA, the BLM manages public lands under Resource Management Plans (RMP). The public lands identified for the DesertXpress Project in Nevada are covered in the Las Vegas Field Office Resource Management Plan (1998). In California, public lands identified for the DesertXpress Project are covered in the California Desert Conservation Area (CDCA) Plan (1980), two CDCA Plan bioregional amendments including the West Mojave Plan (2006) and the Northern and Eastern Mojave Plan (2002). Actions approved under the Selected Alternative are in compliance with these land use plans.

The DesertXpress project will be located within designated transportation and utility corridors. Those corridors are corridors D and BB from the CDCA, corridors 27-225 and 27-266 from Public Law 109-58, and the Interstate 15 South Corridor as designated in Public Law 107-282. Conflict analysis was completed consistent with approved land use plans, and extensive coordination occurred with other corridor users including the Federal Highway Administration, California Department of Transportation, Nevada Department of Transportation, and Clark County Department of Aviation.

### **BLM Guidance and Regulations.**

The BLM processes ROW applications for rights-of-way in accordance with 43 C.F.R. Part 2800 - Rights-of-Way under the Federal Land Policy Management Act and BLM Manual Sections 2800 through 2809.

### **National Environmental Policy Act (NEPA)**

Section 102(C) of NEPA (42 U.S.C. 4332(C)), the Council on Environmental Quality (CEQ) regulations that implement NEPA (40 C.F.R. Parts 1500-1508), and the DOI NEPA implementing regulations (43 C.F.R. Part 46) provide for the integration of NEPA into agency planning to insure appropriate consideration of NEPA's policies and to eliminate delay.

When taking actions such as approving ROW grants, the BLM must comply with the applicable requirements of NEPA and the CEQ and DOI NEPA regulations. Compliance with the NEPA process is intended to assist federal officials in making decisions about a project that are based on an understanding of the environmental consequences of the project. The Draft EIS, Supplemental Draft EIS, Final EIS, and this ROD document BLM's compliance with the requirements of NEPA for the DesertXpress Project.

### **1.1.5. Other Applicable Authorities and Policies**

As this project is a high-speed rail project, it is appropriate to note some of the complimentary public laws and policies that support and contribute to the rationale behind BLM's decision to grant a ROW for this project.

- Public Law 102-240, Intermodal Surface Transportation Efficiency Act, Sec. 1010, Operation Lifesaver, authorizing the Secretary of Transportation to designate High Speed Rail Corridors;
- Public Law 105-78, Transportation Equity Act for the 21st Century, Sec. 7201, High-speed Rail, directing the Secretary of Transportation to establish high-speed rail corridors including the designated California corridor between and among the extensive metropolitan areas of the San Francisco Bay, Sacramento, Los Angeles, and San Diego, and policy decision announced by U.S. Transportation Secretary Ray LaHood July 2, 2009 to connect the California High-Speed Rail Corridor with High Speed Rail to Las Vegas, Nevada.
- Public Law 109-58, the Energy Policy Act of 2005, establishing corridors that facilitate placement of electrical distribution lines, which will be used to power the DesertXpress Project.

### ***1.2. Information Developed Since the Final EIS***

An additional public comment period was held after publication of the Final EIS. Information from these comments resulted in modification of Mitigation Measures LU-1 and LU-1. However, the additional comments on the Final EIS did not represent significant new information and did not create the need for additional NEPA supplementation. See Appendix C of this ROD for a detailed response to public comments.

### ***1.3. Decisions Being Made***

#### **1.3.1. Bureau of Land Management Right-of-Way Grant**

Under federal law, the BLM is responsible for processing requests for ROW grants on land it manages to determine whether and to what extent it should authorize proposed projects, including passenger train projects and their appurtenant facilities. Because the DesertXpress Project would be partially sited on public lands managed by the BLM, DXE applied for a ROW grant from BLM for those segments. The BLM has concluded that the amount of acreage approved by the ROW grant would be the minimum acreage necessary for the DesertXpress Project for constructing, operating, maintaining, and terminating the authorized facilities on public lands. In addition, the BLM has limited the grant to those lands necessary to protect public health and safety, which will not unnecessarily damage the environment, and will not result in unnecessary or undue degradation of the public

lands. These determinations, and the approval of the grant, are based on the analysis and the conditions in the Final EIS, the Biological Opinion, and other laws and regulations applicable to public lands.

On approval of the ROW grant, DXE will be authorized to construct and operate the project in conformance with the requirements specified in the grant. The grant will require the applicant to secure all necessary approvals and permits and post a reclamation bond before the BLM will issue a NTP under the grant instrument. NTPs will be issued for each segment or phase of the design-build project. Consistent with the NTPs, DXE will be able to construct and operate the project, including facility construction and all associated aspects of the project. The BLM has previously granted a ROW for Interstate 15, which DXE will share in part.

### **1.3.2. Design-Build Process**

DXE is developing this project through the design-build process. The design-build process involves submitting design documents with the ROW application that are sufficient to analyze whole project and its reasonable the alternatives, while allowing for the development of additional, more refined, detail of those engineering designs if necessary after the ROW grant has been approved. DXE plans to construct the Project in seven segments, which are detailed in the Final EIS. These segments may be constructed simultaneously.

After a ROW grant is issued, subsequent construction and ground disturbing activities authorized through phased NTPs will only be approved after review and evaluation of the refined design specifications' conformance with the terms and conditions of DXE's grant. A NTP will be required for each phased segment of the Project. Each time a NTP is requested, the BLM will require a bond and reclamation cost estimate. Information on the design and construction of this project will be provided to the BLM by the grantee during all phases of operation, including termination and reclamation, and as a result of monitoring.

A NTP will authorize the initiation of construction and other ground-disturbing activities under this grant, followed by additional NTPs addressing particular aspects of the project on particular segments of the alignment. Each phase of construction will require a NTP from the BLM. Any action taken under an NTP must be within the scope of and consistent with the decision of the ROW grant approved herein. These NTPs and all other applicant requests will be processed through the office managing the grant, currently the Barstow Field Office (BFO). BFO will work with other field offices with jurisdiction over site-specific activities and will maintain the complete ROW grant file during implementation of grant activities. If the managing office changes, the applicant and other offices will be notified through official correspondence. This process is further discussed in the subsequent Section 1.4.1, Post-approval Siting Conformance Process.

### **1.3.3. What is Not Being Approved**

Some aspects of this project are beyond the jurisdiction of the BLM, including those occurring on lands under the jurisdiction of other federal, state, or local agencies, and

private lands. DXE will therefore be subject to regulatory review and permitting from other state and federal agencies. This decision does not approve permits to design and construct the DesertXpress Project across lands not under the jurisdiction of the BLM. Permits to allow construction that may affect resources or uses under the jurisdiction of regulatory agencies, such as the U.S. Army Corps of Engineers, are also not approved through this decision. Such permit requirements and documentation necessary to initiate construction activities will occur prior to issuance of a NTP. Additionally, DesertXpress must show that it has the permits and permissions necessary to initiate construction on non-BLM lands prior to issuance of a particular NTP for phases of the project that include such non-BLM lands.

#### ***1.4. Right-of-Way Requirements***

The BLM uses Standard Form 2800-14 (ROW Lease/Grant) as the instrument to authorize the ROW grant for the project; it incorporates the POD and all other terms, conditions, stipulations, and measures required as part of the grant authorization. A majority of the DesertXpress Project alignment is within existing corridors already designated by BLM for energy production and utility use. Safety issues within the highway right-of-way will be addressed under permits from Federal Highway Administration (FHWA), California Department of Transportation (Caltrans), and Nevada Department of Transportation (NDOT). Consistent with BLM policy, the DesertXpress High-Speed Passenger Train Project ROW grant will include a diligence requirement for installation of facilities consistent with the approved POD. Construction of the initial phase of development must commence within 12 months after issuance of the Notice to Proceed but no later than 24 months after the effective date of the issuance of the ROW grant. The holder shall complete construction within the timeframes approved in the Plan of Development, but no later than 60 months after start of construction.

##### **1.4.1. Post-approval Siting Conformance Process**

Surface disturbance locations and acreages identified in the Final EIS are anticipated to be sufficient for the construction and operation (including maintenance) of the project and all ancillary improvements. However, specific linear route alignments and other project engineering refinements often continue past the project approval phase and into the construction and operation phases. As a result, facility locations, work area locations and disturbed acreages locations documented in the Final EIS often have minor location shifts after project approval. As explained throughout the Final EIS, the project applicant has conducted resource surveys beyond the project footprint in anticipation of the need to make such adjustments in the construction and operation phase to minimize impacts to resources and facilitate minor changes in facility design.

DesertXpress must submit detailed design and build drawings and a request for a NTP prior to any construction activities. The following describes the procedures to be used for addressing modifications to facility (including scope of construction activities), alignment, and location. The BLM will identify compliance with the following procedures as a term and condition of the ROW grant.

Subsequent to issuance of the ROW grant and prior to issuance of the NTP, when the BLM determines that the scope of construction activities, including work areas outside those identified in the ROW, are found to be needed (whether on federal or non-federal lands), additional inventory and evaluation will be performed if necessary to ensure the impacts on biological, cultural, and other resources and conflicts with other uses are avoided or minimized to the maximum extent practicable.

In addition to the Notices to Proceed and resource survey documents, any facility changes or revised facility locations would be documented and forwarded to the BLM in the form of an application to amend the right-of-way. BLM consultations will be required as necessary prior to approval of the application to amend the right-of-way. At the conclusion of project construction or as project phases are completed, as-built drawings must be provided to the BLM. All applications to amend the right-of-way will be documented and tracked to ensure the acreages of disturbance affected by post-authorization amendments remain within the limits of impacts and mitigation measures analyzed in the Final EIS, approved in this ROD, and contained within the ROW grant. At the conclusion of project construction or as project phases are completed, as-built drawings must be provided to the BLM to further document the location of facilities within the ROW.

### ***1.5. Summary of Conclusions***

FRA, FHWA, BLM, and the Surface Transportation Board's Office of Environmental Analysis (STB) have considered analysis of the No Action Alternative, Action Alternatives, and project modifications and additions presented in the Draft EIS and the Supplemental Draft EIS, as well as all public and agency comments received during the review periods, in defining the Preferred Alternative. The Draft EIS, Supplemental Draft EIS, and Final EIS provided a thorough comparative analysis of the various action alternatives and the no action alternative. After comparing the potential impacts of the alternatives, BLM, FRA, and the other Cooperating Agencies selected the Preferred Alternative, which the Agencies believe would fulfill their statutory missions and responsibilities, while giving consideration to economic, environmental, technical, and other factors.

The Preferred/Selected Alternative for the DesertXpress Train Project is the action alternative that provides the best balance between providing public benefits and avoiding impacts to resources, including the following:

- **Cultural Resources.** Throughout the EIS process, the FRA and the BLM sought to involve Tribes and the State Historic Preservation Officers (SHPOs) in the development of mitigation measures that would minimize or avoid cultural resources to the extent practicable. As a result of consultation with Tribal governments and representatives and the measures contained within the Programmatic Agreement (PA), the Selected Alternative avoids or substantially mitigates impacts to known sensitive cultural resources in the area to the extent feasible. These measures are outlined in the grant terms and conditions and the PA developed with the State Historic Preservation Officers.
- **Biological Resources.** Throughout the EIS process, the FRA and BLM consulted with the USFWS to develop mitigation measures for biological resources in order



to minimize impacts to the extent practical. On April 26, 2011, the USFWS issued a BO mandating implementation of these measures. Based on the conditions in the BO and planned ongoing consultation with the USFWS during project construction and operations, the Project is not likely to jeopardize the continued existence of the desert tortoise and is not likely to adversely modify the critical habitat of the desert tortoise.

- **Hydrologic Resources.** Based on preliminary design information provided by DXE, the Final EIS concluded that the bridging and culverted crossings of the Mojave River and intermittent ephemeral streams, washes, and ditches are not anticipated to permanently alter their courses or flows. The Selected Alternative design will incorporate the use of existing natural drainage features, as appropriate, in order to minimize disruption of natural flow and function.

The rail alignment will connect with and mirror the existing I-15 freeway culverts where the rail alignment will be located within the I-15 freeway ROW. Where the rail alignment deviates from the I-15 freeway ROW, the impacts are mitigated. As a result, the Selected Alternative would result in less than or similar impacts to the other action alternatives related to cultural, biological and hydrological resources, which were resources of particular concern.

Additionally, the DesertXpress Train Project is expected to provide employment, energy conservation, and safety benefits to the region and the nation. The project will bring much-needed jobs to the area; analysis in the Final EIS estimates that the project is expected to create up to 45,853 direct jobs during construction, and 722 permanent, full-time jobs during the train's operation, offsetting anticipated high-desert job losses from commuter traffic along I-15. The transportation shift from automobiles to passenger trains would reduce air pollutant emissions from automobiles, reduce fuel consumption for automobile use on the I-15 corridor, and limit the need to expand the I-15 highway. By reducing the number of automobiles on I-15, the project could potentially reduce the accident rate, thus improving traffic flow and relieving congestion on the highway. Diversion to train use would reduce energy consumption related to the No Action Alternative by an equivalent of 444,900 barrels of oil per year.

## **2. Mitigation and Monitoring**

### ***2.1. Required Mitigation***

As required in the BLM *NEPA Handbook H-1790-1* and 40 C.F.R. 1505.2(c), except for those mitigation measures with explanation as to why they were not adopted (as further discussed below in section 2.3), all practicable means to avoid or minimize environmental harm from the DesertXpress Project have been adopted.

This ROD requires the DesertXpress Project to comply with all mitigation criteria included within the following:

- Terms, Conditions and Stipulations of the BLM ROW grant.
- Terms and Conditions in the United States Fish and Wildlife Service Biological Opinion provided in Appendix B, of this ROD, as such may be amended over time;
- Terms and Conditions provided in Appendix F-H Programmatic Agreement, of the Final EIS; and
- The Plan of Development for the DesertXpress Train Project.

See Appendix D following this ROD for a full list of Terms, Conditions, and Stipulations, which will be part of the ROW grant.

### ***2.2. Monitoring, Mitigation, and Enforcement***

Federal Regulations describe how an agency may also provide for monitoring to assure that its decisions are carried out and should do so in important cases. (40 C.F.R. 1505.3). Additionally, the BLM must adopt a monitoring and enforcement program where applicable for mitigation on BLM managed land. (40 C.F.R. 1505.2(c)). In general, as a decision-making federal agency, the BLM shall:

- a. Include appropriate conditions in grants, permits or other approvals;*
- b. Condition approval of actions on mitigation;*
- c. Upon request, inform cooperating or commenting agencies on progress in carrying out mitigation measures they have proposed and that were adopted by the agency making the decision; and*
- d. Upon request, make available to the public the results of relevant monitoring*

(40 C.F.R. 1505.3).

A Mitigation and Commitments Plan for the DesertXpress Project has been developed and approved by the FRA as the lead NEPA Agency. Additionally, the ROW grant will

stipulate that DXE will develop monitoring plans. These plans are detailed in Appendix D of this ROD. All required monitoring plans must be completed before a NTP is issued for the first phase of construction. The BLM is responsible for ensuring compliance with all adopted mitigation measures for the project as outlined in the ROW grant. The complete language of all the mitigation measures, terms, conditions, stipulations, including those found in the BO, ROW grant, and any other federal or state approvals, is provided in Appendix D following this ROD. The BLM will require compliance with the mitigation in Appendix D through the ROW grant as terms and conditions. Failure on the part of DXE, as the grant holder, to adhere to these terms and conditions could result in various administrative actions up to and including a termination of the ROW grant and requirements to remove the facility and rehabilitate disturbances.

### ***2.3. Mitigation Measures Not Adopted***

In conformance with 40 C.F.R. 1505.2(c), the BLM is identifying the following mitigation measures from the Final EIS that are not adopted because they are not applicable to impacts on public lands:

- Mitigation Measure GRO-1: Applicant Coordination with City of Barstow and San Bernardino County for Employment;
- Mitigation Measure FAR-1: Direct and Indirect Conversion of Protected Farmland;
- Mitigation Measure UTIL-1: Payment of connection and/or user/service/tipping fees;
- Mitigation Measure UTIL-6: Payment of impact fees for police, fire, and emergency services;
- Mitigation Measures TRAF-1 through TRAF-4, Traffic and Transportation.

Also, the BLM is not adopting Mitigation Measure FAR-5: Purchase of Grazing Allotment. The BLM cannot require the holder of the grazing lease to sell base property tied to a grazing allotment. The lessee may voluntarily relinquish the preference associated with the allotment. If this occurs, the BLM would determine whether to continue to authorize grazing at that time. A decision to retire the allotment may require a land use plan amendment to the Northern and Eastern Mojave Desert Management Plan.

### ***2.4. Coordination with Other BLM Monitoring Activities***

In some instances, the BLM identified potential mitigation measures for impacts to public land resources that would not be, and have not been, identified as mitigation measures required by other agencies. In those instances, individual mitigation measures were developed by the BLM, which will be incorporated in the ROW grant, and will be monitored and managed solely by the BLM. In addition, standard terms and conditions for approval of the use of public land were incorporated in the ROW grant and, therefore, will be enforced by the BLM as part of any ROW grant approved for the project.

### **3. Management Considerations**

#### ***3.1. Decision Rationale***

This decision approves a ROW grant for the DesertXpress High-Speed Passenger Train Project in accordance with the Agency Preferred Alternative (Selected Alternative) as analyzed in the Final EIS. The BLM's decision to authorize this activity is based on the rationale described throughout the ROD and as detailed in the following sections.

##### **3.1.1. Respond to Purpose and Need**

Approval of the ROW grant for the Selected Alternative accomplishes the BLM's purpose and need for the DesertXpress Project, as it responds to an application submitted under Title V of FLPMA for a ROW grant to construct, operate, maintain, and terminate a high-speed passenger train on public lands in compliance with FLPMA, BLM ROW regulations, and other applicable federal laws.

The Selected Alternative also meets FRA's purpose and need to provide reliable and safe passenger rail transportation using high-speed rail technology between Victorville, California and Las Vegas.

##### **3.1.2. Achieve Goals and Objectives**

The Selected Alternative meets all project objectives, and is technically and economically feasible. It helps meet federal and state objectives for high-speed rail corridor development. The Selected Alternative provides for the best balance between transportation capacity developments, while reducing adverse impacts as compared to the other action alternatives.

In general, the construction, operation, maintenance, and termination activities associated with the Selected Alternative, either as proposed or in combination with mitigation, are in conformance with the following land use plans and policies:

- BLM policy and guidance for issuing ROW grants, including BLM Manual 2801.11;
- California Desert Conservation Area Plan of 1980, as amended;
- Northern & Eastern Mohave Desert Coordinated Management Plan, 2002; and
- Las Vegas Field Office Resource Management Plan of 1988.

#### ***3.2. Required Actions***

The following federal statutes require that specific actions be completed prior to issuance of a ROD and project approval, and such actions have occurred for this project:

### **3.2.1. Endangered Species Act of 1973**

Under Section 7 of the Endangered Species Act, as amended (ESA) (16 U.S.C. 1531 et seq.) a federal agency that authorizes, funds, or carries out a project that “may affect” a listed species or its critical habitat must consult with the United States Fish and Wildlife Service (USFWS). The FRA submitted a draft Biological Assessment in December 2010 in accordance with Section 7 of the ESA for potential effects to Desert tortoise (*Gopherus agassizii*), least Bell’s vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*).

The USFWS issued a BO for the DesertXpress Project on April 26, 2011, which is provided in Appendix B. The Biological Opinion concluded that the proposed DesertXpress Project is not likely to jeopardize the continued existence of the desert tortoise and is not likely to adversely modify the critical habitat of the desert tortoise. The BO also acknowledged that Applicant-proposed avoidance measures would result in no effect to the least Bell’s vireo and southwestern willow flycatcher species or the critical habitat of the southwestern willow flycatcher. Measures included in the BO would reduce any anticipated adverse impacts, and the ROW grant will contain a standard stipulation that requires compliance with the BO. BLM’s issuance of NTPs will require the Applicant to comply with the BO.

FRA was the lead agency for ESA consultation for the DesertXpress Project. Under the regulations implementing Section 7, consultation responsibilities may be fulfilled through a lead agency. (50 C.F.R. 402.07). The BLM will implement the proposed action and terms and conditions as described in the BO.

### **3.2.2. The Bald and Golden Eagle Protection Act**

This Act provides for the protection of bald and golden eagles by prohibiting, except under certain specified conditions, disturbance, or harm of these species. To comply with the Act the BLM will require DXE to identify steps DXE will take to ensure eagle impacts are mitigated to the extent practicable including but not limited to ongoing surveys, impact monitoring, and facility design.

### **3.2.3. National Historic Preservation Act**

Section 106 of NHPA (16 U.S.C. 470) requires federal agencies to take into account the effects that their approvals and federally funded activities and programs have on historic properties. “Historic properties” are those properties that are included in, or eligible for, the National Register of Historic Places. The FRA initiated consultation for the DesertXpress Project under Section 106 of the NHPA, and the requisite process has been completed. A detailed PA for this project was executed in February, 2011, and signed by the lead and cooperating federal agencies, and the SHPOs for Nevada and California, pursuant to 36 C.F.R. 800.14(b). The Programmatic Agreement is provided in Appendix F-H of the Final EIS. The PA gives a complete history of the tribal consultation and tribal response to the project alternative routes.

### **3.2.4. Clean Air Act, as Amended in 1990**

The Clean Air Act is the law that defines the Environmental Protection Agency's (EPA) responsibilities for protecting and improving the nation's air quality and the stratospheric ozone layer by preventing significant deterioration of air quality, particularly for actions in areas (1) where thresholds have been or may be exceeded for criteria pollutants; and (2) where actions may adversely affect the stratospheric ozone layer. The Clean Air Act is a federal law covering the entire country. The NTPs issued by the BLM are contingent upon DXE obtaining any necessary permits and compliance of the DesertXpress Project with any mitigation, terms, conditions, and stipulations related to emission controls and reductions during project construction, maintenance, operation, and decommissioning, as determined by the applicable state permitting authority.

### **3.2.5. Clean Water Act**

Concurrently with the NEPA process, the Applicant initiated the Clean Water Act (CWA) Section 404 permitting process with the US Army Corps of Engineers (USACE) in May 2010. The CWA Section 404 established a program to regulate the discharge of dredged or fill material into waters of the US, including wetlands. As part of this CWA Section 404 permitting process, DXE prepared two formal jurisdictional delineation reports for the Ivanpah Valley area and the Las Vegas watershed (see Final EIS, Section 3.8, Hydrology and Water Quality). Jurisdictional determination and issuance of a permit for the discharge of fill material into waters of the US associated with construction of the DesertXpress project will be part of the CWA Section 404 permit process administered by the USACE.

In addition to the CWA Section 404 permit, the Applicant will apply for certification under Section 401 of the CWA. Section 401 Certification is administered in California through the Regional Water Quality Control Boards (in the case of the DesertXpress Project the Lahontan Regional Water Quality Control Board) and in Nevada by the Nevada Division of Environmental Protection. Issuance of the CWA Section 404 permit by the USACE, and Section 401 Certification, are anticipated to follow issuance of the records of decision for the project by the Cooperating Agencies.

### **3.2.6. Statement of No Unnecessary or Undue Degradation**

Congress declared that the public lands be managed for multiple use and sustained yield, in a manner to protect certain land values such as, to provide food and habitat for species and to provide for outdoor recreation and human occupancy and use (43 U.S.C. 1701 (a)(7), (8)). Multiple use management means that public land resources are to be managed to best meet the present and future needs of the American public, balanced to take into consideration the long term needs of future generations without permanent impairment of the lands (43 U.S.C. 1702(c)). The BLM manages public land through land use planning, acquisition, and disposition, and through regulation of use, occupancy, and development of the public lands (Subchapters II and III, respectively, 43 U.S.C. 1711 – 1722, and 1731 – 1748).

FLPMA specifically provides that in managing the use, occupancy, and development of the public lands, the Secretary shall take any action necessary to prevent unnecessary or undue degradation of the lands (43 U.S.C. 1732(b)). The process for siting and evaluating the DesertXpress Project has included extensive efforts on the part of BLM, the applicant, the public, and other agencies to authorize a project that accomplishes the purpose and need and other project objectives, while preventing unnecessary or undue degradation of the lands. These efforts have included:

- Siting of the proposed facility in locations in which right-of-way development can be authorized (following NEPA review), and which have not been specifically designated for the protection of any resources;
- Modification of the proposed boundaries of the facilities to minimize impacts to cultural, biological, and other resources;
- Evaluation of project location alternatives which could meet the purpose and need for the proposed project, but result in the avoidance and/or minimization of impacts; and
- The development of mitigation measures, including compensation requirements for the displacement of desert tortoise habitat, to further avoid or minimize impacts.

In addition, BLM ROW regulations at 43 C.F.R. 2805.11(a)(1) through (5) require determinations for the following:

*BLM will limit the grant to those lands which BLM determines:*

*(1) You (Applicant) will occupy with authorized facilities;*

*(2) Are necessary for constructing, operating, maintaining, and terminating the authorized facilities;*

*(3) Are necessary to protect the public health and safety;*

*(4) Will not unnecessarily damage the environment; and*

*(5) Will not result in unnecessary or undue degradation.*

The lands described in the Selected Alternative are the minimum necessary to accommodate the construction, operation, and maintenance of the DesertXpress Project. Areas under the Selected Alternative that were not necessary for the construction, operation, and maintenance of the facilities were not included in the project description. The applicant has consolidated activities within the construction staging areas to minimize the amount of additional temporary workspace needed to construct and assemble facility components. All temporary disturbances associated with construction will be immediately reclaimed to minimize erosion in accordance with approved reclamation plans. Public health and safety will not be compromised by the project as construction work areas will be identified with a sign and public access to those areas controlled to prevent possible injury to the public.

The Selected Alternative will achieve many beneficial impacts including socioeconomic benefits of increases in employment and fiscal resources, while not causing unnecessary or undue degradation of the lands.

As noted above, Congress specifically recognized multiple use and sustained yield, which contemplate the planning for the present and future use and enjoyment of the public lands. The 1980 CDCA land use plan, as amended, and the Las Vegas Field Office RMP identify allowable uses of the public lands in the project area. In particular, it authorizes the location of right-of-way facilities. BLM has conducted that review, and as indicated in the Final EIS and portions of this ROD, has adjusted the project to meet public land management needs and concerns. In particular, the BLM has determined that the Selected Alternative falls within the guidelines of the Las Vegas RMP and CDCA Plans.

In addition, the project meets the requirements of applicable ROW regulations in as much as it includes terms, conditions, and stipulations that are in the public interest; prevents surface disturbance unless and until an NTP is secured; is issued for a period of 30 years, subject to renewal and periodic review; and contains diligence and bonding requirements to further protect public land resources. This approval provides that public land will be occupied only with authorized facilities and only to the extent necessary to construct, operate, maintain, and terminate the project. BLM conditions of approval provide for public health and safety and protect the environment and the public lands at issue. These conditions of approval include compliance with this ROD, ROW grant, applicable portions of the Final EIS, the BO, and NHPA Section 106 requirements inclusive of the Programmatic Agreement. All of these requirements provide the basis for BLM's determination that the project will not unnecessarily and unduly degrade these public lands.

### **3.2.7. Statement of Technical and Financial Capability**

FLPMA and its implementing regulations provide the BLM the authority to require a project application to include information on an applicant's technical capability to construct, operate, and maintain the facilities applied for (43 C.F.R. 2804.12(a)(5)). The Applicant has provided information on the availability of sufficient capitalization to carry out development to appropriate agencies, including the preliminary study phase of the project, as well as site testing and monitoring activities.

DXE's statement of technical and financial capability was provided in the application for a ROW. DesertXpress Enterprises LLC is a private company based in Las Vegas, Nevada. Based upon the information provided by the Applicant, and the decision of the FRA, which has more expertise in railway issues, the BLM has determined that DXE has the technical and financial capability required to construct, operate, and maintain the approved facility.

### ***3.3. Relationship of BLM with Other Agency Plans, Programs and Policies***



### **3.3.1. Tribal Consultation**

The FRA, in cooperation with BLM, conducted government-to-government consultation with the following tribes concerning properties of traditional religious and cultural significance:

- the San Manuel Band of Mission Indians,
- the Soboba Band of Luiseño Indians,
- the Chemehuevi Reservation,
- the Las Vegas Paiute Tribe,
- the Fort Mojave Indian Tribe,
- the Ti'At Society,
- the Colorado River Indian Tribes,
- the Morongo Band of Mission Indians,
- the Kern Valley Indian Council,
- the Timbisha Shoshone,
- the Serrano Band of Indians,
- the Moapa Band of Paiutes, and
- the Twenty-Nine Palms Band of Mission Indians

The consultation and discussions revealed concerns about potential Project impacts to important and sensitive cultural resources near the Project site, concerns about cumulative effects to cultural resources, and, further, that certain tribes attach significance to the broader cultural landscape. As a result of this consultation, many important cultural resources were identified in the project area, and subsequently avoided in the Selected Alternative.

As described in Section 3.2.3, *NHPA Section 106 Programmatic Agreement*, the FRA as the Lead Agency, and in coordination with the BLM as a Cooperating Agency, consulted with federally recognized Native American Tribes on the development and execution of a PA for the DesertXpress Project. In accordance with 36 C.F.R. Part 800.14(b), programmatic agreements are used for the resolution of adverse effects for complex project situations and when effects on historic properties (resources eligible for or listed in the National Register of Historic Places [National Register]) cannot be fully determined prior to approval of an undertaking.

Based on the ongoing consultation with Tribal governments and representatives, and implementing the processes from the Programmatic Agreement, many cultural resources in the area have been avoided by the Selected Alternative, unavoidable impacts will be substantially mitigated, and a plan is in place to address cultural resources that are discovered during project construction. As a result, the Selected Alternative would result in impacts less than or similar to the other action alternatives related to cultural resources. The Programmatic Agreement, which includes a detailed summary of government-to-government consultation, can be found in Appendix F-H of the Final EIS.

### **3.3.2. United States Fish and Wildlife Service Section 7 Consultation**

The FRA's consultation and coordination with the USFWS for the DesertXpress project complied with the ESA regarding the take of the primary species of concern, the Desert Tortoise. As a result, the Selected Alternative encompasses a suite of mitigation measures to address any impacts to the Tortoise necessary to comply with the USFWS's BO. Additionally, the BLM found the Selected Alternative would result in impacts less than or similar to the other Alternatives related to Desert Tortoise. For details on the consultation, see section 3.2.1 above.

### **3.3.3. Section 106 Programmatic Agreement and State Historic Preservation Office Consultation**

The FRA and BLM consulted with the California and Nevada SHPOs under Section 106 of the NHPA. In February, 2011, a Programmatic Agreement for the DesertXpress Project was executed by signature between the lead and cooperating federal agencies and the SHPOs for Nevada and California pursuant to 36 C.F.R. 800.14(b). See also Section 3.2.3 above.

### **3.4. Consultation with Other Agencies**

Section 5.5, below, lists other federal, State, regional, and local agencies or entities with which the BLM, FRA, and/or DXE have consulted, as part of one or more of the following project review phases: planning, scoping, public review of the Draft EIS and Supplemental Draft EIS, and public review of the Final EIS. In addition to the NEPA coordination process, DXE may have to obtain permits and other approvals from other agencies/entities or comply with requirements of other agencies/entities that did not provide written input on the project and/or the EIS. Those agencies include, but may not be limited to:

- Regional Water Quality Control Board
- Regional Air Pollution Control District
- California Department of Fish and Game
- United States Army Corps of Engineers
- Union Pacific Railroad
- U.S. Department of Energy
- U.S. Department of Transportation
- U.S. Fish and Wildlife Service
- U.S. Geological Survey

### **3.5. Land Use Plan Conformance and Consistency**

#### **3.5.1. Conformance with BLM Land Use Plans**

The public lands identified for the proposed rail line in Nevada are covered in the Las Vegas Field Office RMP (1998) and in California by the CDCA Plan, as amended (1980). Two large CDCA Plan bioregional amendments are applicable to this project – the West Mojave Plan (2006) and the Northern and Eastern Mojave Plan (2002).

Objective RW-1 of the Las Vegas Field Office Resource Management Plan Record of Decision is to "Meet public demand and reduce impacts to sensitive resources by providing an orderly system of development for transportation, including legal access to private in-holdings, communications, flood control, major utility transmission lines, and related facilities." Further, management direction at RW-1-h states that, "All public land within the planning area, except as stated in RW-1-c through RW-1-g, are available at the discretion of the agency for rights-of-way under the authority of the Federal Land Policy Management Act." The exceptions referenced within RW-1-c through RW-1-g are not applicable to the Selected Alternative.

This decision is also consistent with the CDCA Plan and its amendments. Within the CDCA, railroads may be allowed on public lands classified for "Moderate" or "Intensive" use, or are unclassified. Railroads may be allowed on public lands that are classified as "Limited" use if no other viable alternative is possible. On portions of public lands east of Afton Canyon, all viable routes crossed some portions of "Limited" use lands, and may also cross Areas of Critical Environmental Concern; no viable routes existed that did not cross "Limited" lands. Lands within existing corridors are preferred in these circumstances, consistent with other existing authorized uses, and balancing future needs in those corridors based on the goals of the CDCA Plan.

### **3.5.2. Western Mojave Desert Travel Route Designations**

Various federal regulations, Executive Orders, and the CDCA Plan require the BLM to designate routes of travel as Open, Limited, or Closed to vehicular travel and to assure that resources are properly managed in a multiple use context. In 2003, in an amendment to the CDCA Plan, the BLM identified and designated many routes of travel in the Western Mojave Desert Off Road Vehicle Designation (WEMO) plan amendment. This plan amendment clarified, updated, and assigned designations (Open, Closed, or Limited) to all travel routes within the WEMO amendment area. The DesertXpress project site is within the WEMO amendment area. The DesertXpress Project access will be via Open routes.

### **3.6. Utility Corridors**

The DesertXpress project site lies within designated Corridors 27-266 and 27-225. BB, BB-D, the Corridor designated by Section 368 of the Energy Policy Act of 2005, and crosses the Transportation and Utility Corridor as described in Public Law 107-282 and established by BLM in Nevada.

Upon review and comparison of the location and size of the DesertXpress Project within these corridors, with the continued availability of corridor space, the BLM determined that sufficient space remains so the project would not adversely affect the BLM's ability to site future utilities within such corridors.

## **4. Alternatives**

DXE proposed to construct and operate an interstate high-speed passenger train between Victorville, California and Las Vegas, Nevada along an approximately 200-mile corridor. The proposal was to construct nearly all of the fully grade separated, dedicated double track, passenger-only railroad either in the median or immediately alongside Interstate 15 (I-15). Limited portions of the railroad alignment would be located within existing railroad corridors or rights of way.

The FRA and cooperating agency analyzed several alignment alternatives to the proposed action, as well as alternatives for facilities and technology.

### ***4.1. Alternatives Fully Analyzed***

The action alternatives considered in the DesertXpress EIS were categorized in two primary sets: Action Alternative A and Action Alternative B for each of the seven segments comprising the entire project. These Alternatives were based on potential alignment routings for the 200-mile corridor. The Final EIS described these alternatives in segments to allow “mix and match” of the alternatives as summarized below.

#### **4.1.1. The Proposed Action – DesertXpress High-Speed Passenger Train**

The Proposed Action includes constructing and operating a high-speed passenger train between Victorville, California and Las Vegas, Nevada along a 200-mile corridor. Nearly all of the project consists of a fully grade separated, dedicated double track, passenger-only railroad either in the median or immediately alongside Interstate 15 (I-15). The project also includes track and drainage crossing structures along the route; and train stations, switchyards, access roads, utilities to service the stations, fencing, parking and maintenance facilities in Victorville and Las Vegas.

#### **4.1.2. Alternatives – Rail Alignment Options**

For evaluation purposes, the distance between Victorville and Las Vegas was divided into seven segments. For each segment, one or more alignments were considered, in addition to the No Action Alternative. For organization purposes, the Alternatives for each segment were grouped into the following general categories:

- Action Alternative A: “Median Alternatives”: from Yermo, California, northeasterly to Clark County/Las Vegas (Segments 3 through 7), the alignments would primarily be located in the I-15 median. Alternative A does not differ from Alternative B for Segments 1 and 2.
- Action Alternative B: “Right-of-Way Alternatives”: most of the distance between Victorville and Clark County/Las Vegas (Segments 1 through 7), the tracks would be located within or immediately adjacent to the ROW of the I-15 freeway.

- Option C: would diverge from the I-15 corridor in Clark County and generally follow the existing Union Pacific Railroad (UPRR) ROW.

In addition, in response to public and agency comments, the Supplemental Draft EIS also included an evaluation of a third alignment option for Segments 2 and 4, Segment 2C and Segment 4C. Two routing options were considered for Segment 2C, the Segment 2C Side Running and Segment 2C Median alignment options. Both alignment options would follow the I-15 freeway corridor through Barstow, located on the western and northern side of the I-15 and within the median, respectively. Segment 4C would diverge from the I-15 freeway corridor in the same location as Segment 4B considered in the Draft EIS. Segment 4C would extend to the north of the Clark Mountains through undeveloped lands, just west of the proposed Segment 4B alignment option, and re-connect with the I-15 freeway corridor in the vicinity of Primm, NV.

Table 1, below, shows the alternatives considered by segment and identifies the selected alternative for each segment.

**Table 1 Summary of Alignment Alternatives**

<b>Segment</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Option C</b>	<b>Preferred</b>
<b>1: Victorville to Lenwood</b>	From any Victorville station alternative, Segment 1 would run along west side of I-15 corridor for 21 to 29 miles	From any Victorville station alternative, Segment 1 would run along west side of I-15 corridor for 21 to 29 miles	NA	Segment 1. VV3 to Hodge Road
<b>2: Lenwood to Yermo</b>	Segment 2 A/B, would cross the Mojave River and run through northern Barstow, then Segment 2A would run about 1 mile north of I-15 past Yermo	Segment 2 A/B, would cross the Mojave River and run through northern Barstow, then Segment 2B would run less than 0.5 mile north of I-15 past Yermo	Segment 2C alignment within the I-15 corridor through Barstow (side running and median options considered); then same as 2A from Old Hwy 58 to Yermo.	Segment 2C Side Running
<b>3: Yermo to Mountain Pass</b>	Segment 3A: Within I-15 median	Segment 3B: West of I-15, running alongside	NA	Segment 3B (Modified)

Segment	Alternative A	Alternative B	Option C	Preferred
		freeway, except for a modification to the East side near Halloran Springs RD		
<b>4: Mountain Pass to Primm</b>	Segment 4A: Includes approx. 2 mile portion of Mojave National Preserve then east of I-15	Segment 4B: Through new tunnels in mountains northwest of I-15, then overland until rejoining I-15 corridor at Primm	Segment 4C, similar to Segment 4B, but avoids planned solar energy projects	Segment 4C
<b>5: Primm to Sloan Road</b>	Segment 5A: Within I-15 median	Segment 5B: Along east side of I-15	NA	Segment 5B
<b>6: Sloan Road to Las Vegas (Southern or Central A/B Stations)</b>	Segment 6A: Within I-15 median	Segment 6B: Varying from east to west side of I-15, except for 1.5 miles in an adjacent county transportation corridor	Segment 6C: UPRR Corridor	Segment 6B
<b>7: West Twain Avenue to Downtown Station</b>	Segment 7A: Within I-15 median	Segment 7B: West side of I-15	Segment 7C: UPRR Corridor	NA

Action Alternative A alignments would provide median crossings for the segments located within the median of I-15 (Segments 3 through 7). For these portions, specifically between Yermo, CA, and Clark County/Las Vegas, NV, the barriers and fencing would incorporate cross medians that would provide an opening for emergency access to the high-speed rail ROW. To provide access across the I-15 median for authorized emergency vehicles, such as police, fire, and paramedics, Action Alternative A rail alignments would provide culverts under the railroad ROW for the exclusive use of

emergency vehicles. In addition to the existing accessible highway overpasses and underpasses, the cross medians would be located approximately every 10 miles, or as required by the respective State Highway Patrols and state Departments of Transportation. Action Alternative B would not require the implementation of cross median emergency access, as these rail alignments would be located alongside the existing I-15 freeway, within the I-15 ROW. Emergency access across the I-15 median would thus be unaffected.

Based on additional consultation following publication of the Supplemental Draft EIS, an approximately 10-mile portion of Segment 3B would be further modified to reduce or avoid impacts to sensitive resources in the area. This portion of the Segment 3B rail alignment near the I-15/Halloran Springs Road interchange would shift to the south side of the I-15 freeway within the existing I-15 ROW for a distance of approximately 10 miles. The Segment 3B rail alignment would then cross under the I-15 freeway, staying within the ROW, and then returning to the north side of the freeway.

All Action Alternatives include the use of the Temporary Construction Areas (TCAs), which are detailed in Table F-2-6 of the Final EIS.

#### **4.1.3. Alternatives – Facility Options**

The Action Alternatives would also include several permanent physical facilities. The Final EIS examined multiple site options for these facilities. Similar to the consideration of rail segments noted above, FRA's intent was to allow for the Lead and Cooperating Agencies to compose their preferred alternative by incorporating one each of the following permanent physical facilities. With very few exceptions, these physical facilities can connect to all rail alignment segments.

- Victorville passenger station: Two site options were considered (Victorville Station Sites 1, 2, and 3 were considered:
  - Victorville Station Sites 1 and 2 (VV1 and VV2), both immediately west of the I-15 freeway in the vicinity of Stoddard Wells Road;
  - Victorville Station Site 3 (VV3) at Dale Evans Parkway
- Victorville Operations, Maintenance, and Storage Facility (OMSF): Two site options (OMSF Site Option 1 (OMSF 1) and OMSF Site Option 2 (OMSF 2)) immediately west of the I-15 freeway were considered.
- Maintenance of Way (MOW) facility: One site option adjacent to the I-15 freeway near the community of Baker was considered.
- Las Vegas area passenger station: Four site options in Clark County/City of Las Vegas (Southern Station, Central Station A, Central Station B, and Downtown Station) were considered.
  - Southern Station, along Polaris Road, between West Russell Road and West Hacienda Drive, across I-15 from the Mandalay Bay Resort and Casino.
  - Central Station A, between West Flamingo Road and West Twain Avenue, adjacent to the Rio Suites Hotel property.
  - Central Station B, south of West Flamingo Road, in an area along the UPRR right of way that is currently occupied by industrial/light industrial uses.

- Downtown Station, in the City of Las Vegas, along South Main Street between West Bonneville Avenue and Boulder Avenue.
- Las Vegas area Maintenance and Storage Facility (MSF): Four site options (Sloan Road MSF, Relocated Sloan Road MSF, Wigwam Avenue MSF, and Robindale Avenue MSF) were considered.

#### **4.1.4. Alternatives – Technology Options**

The Final EIS evaluated two possible train technologies, (referred to as “technology options”, detailed in Section 2.3.2.4 of the Final EIS). Each are fully applicable to any set of the Action Alternatives.

- Diesel-Electric Multiple Unit Train (DEMU)
- Electric Multiple Unit Train (EMU)

The two technology options would have similar ROW width requirements and largely the same construction footprint. However, the EMU option would also include overhead catenary wires and supports (located along the length of the rail alignment), three electrical substations (one at an OMSF, one at the MOW, and one at an MSF), and approximately 17 transformers (each located on 4,000 to 5,000 square foot parcels at 10 mile intervals along the rail corridor). The EMU option would also require three electrical utility connections from the existing electrical grid: one in Victorville, one in Baker, and one near Sloan. Several train technologies for the DesertXpress project were considered but rejected from analysis in the Final EIS.

#### **4.1.5. No Action Alternative**

Under the No Action Alternative, the BLM would not grant a ROW, and the DesertXpress project would not be built.

#### **4.1.6. Alternatives Considered But Dismissed From Further Evaluation**

##### **Alignment**

Two major ground transportation alignments currently exist between Victorville and Las Vegas: the I-15 freeway and the UPRR mainline. An alternative alignment was investigated that would follow the existing mainline UPRR alignment across the Mojave National Preserve (Preserve) through Cima and Kelso. While a UPRR alternative would enable the trains to avoid the steep grades along I-15, it would be a much longer, less direct route that would require the construction of new tracks through the Preserve alongside the UPRR tracks. Based on discussions between DXE and the National Park Service (NPS), it was determined that the alignment through the Preserve would increase the severity of potential environmental impacts, including direct impacts to the Preserve, compared to following the median and/or north side of the I-15 alignment. Additionally, this alternative would be significantly longer, with many speed-restricting curves. Such a route would add substantial travel time and thus fail to attract sufficient ridership.



Similarly, it was considered that any alignment alternative within the urbanized portions of the Las Vegas Valley that would not follow existing major transportation corridors (i.e., existing freeways and railroad ROWs) would have the potential to result in substantial adverse impacts to urban/suburban areas (such as displacement of residents and businesses, increased noise and visual impacts, and impacts to property access). Such impacts would result largely from the incompatibility of high-speed train operations within existing residential and/or commercial developments. This resulted in the elimination of routes that would divert from major transportation corridors and instead follow existing streets and boulevards. For non-urbanized areas, BLM review of available data indicated that any alignment alternative substantially deviating from the I-15 freeway corridor would result in more substantial adverse environmental effects to sensitive resources, including but not limited to threatened and endangered species (including habitat areas), cultural resource sites, hydrological features, and scenic vistas. The existing I-15 ROW is already substantially disturbed and most of its native habitat values have been lost.

## **Facilities**

The Draft EIS evaluated the original Sloan Road MSF; however, during the review of the Draft EIS, the Clark County Department of Aviation submitted comments indicating that location would be in direct conflict with a proposed “super arterial” roadway to the planned Southern Nevada Supplemental Airport. Based on this comment, the original Sloan Road MSF was eliminated from analysis, and the Relocated Sloan MSF was analyzed in the Supplemental Draft and Final EIS.

## **Technology**

In developing this project, the DXE explained how it considered various train technologies for the DesertXpress project, and sought to identify a train technology with proven reliability that could be readily adapted to the unique desert environment of the Mojave/Las Vegas region and deliver reliable and rapid performance on the long and relatively steep grades along portions of the route. Based on this criteria, DXE recommended, and the FRA and BLM found that steel-wheel train systems with distributed propulsion (e.g. with most of the passenger cars on the train being powered) was the only viable technology. One of the technologies eliminated from detailed analysis was magnetic levitation. Elimination was appropriate given the potential difficulty in securing the proprietary technology, and concern for ensuring the project’s economic viability. Magnetic levitation technology was found to be cost-prohibitive for a project implemented by a private entity. For a proposed route between Anaheim and Las Vegas using this technology, the total estimated cost is \$12 billion, or about \$48 million per route mile. In comparison, DXE has estimated the total capital cost of the DesertXpress (Victorville to Las Vegas) at \$6-6.5 billion (up to \$33 million per route mile). Therefore, magnetic levitation technology was eliminated as not economically feasible.

A conventional locomotive-hauled train with non-motorized passenger cars was initially studied by DXE, but eliminated as technologically infeasible after train simulation models showed unsatisfactory results in performance and predicted reliability on the route’s long, steep grades.

FRA, BLM, and the other Cooperating Agencies concurred that these technologies were infeasible for the reasons listed above and therefore were not reasonable alternatives. As such, these technologies were not carried forward for complete alternatives analysis.

#### ***4.2. Environmentally Preferred Alternatives***

The Council on Environmental Quality (CEQ) regulations implementing NEPA require that “the alternative or alternatives which were considered to be environmentally preferable” be identified. (43 C.F.R. 1505.2(b)). Environmentally preferable is defined as “the alternative that will promote the national environmental policy as expressed in the NEPA, Section 101.” Ordinarily this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources. (See Question 6a, CEQ, *Forty Most Asked Questions Concerning CEQ’s NEPA Regulations*, March 23, 1981; BLM National Environmental Policy Act Handbook, H-1790-1, Section 9.7.1 (2008).

FRA, BLM, and the other Cooperating Agencies have identified an environmentally preferable alternative. This is the combination of rail alignments and project features that result in the fewest or least intensive adverse effects. Numerous economic, environmental, technical and other factors led the Lead Agency and Cooperating Agencies, to not select the environmentally preferred alternative in favor of the Preferred Alternative identified in detail in Section 2.4 of the Final EIS. Components of the environmentally preferable alternative are identified below.

- Victorville Station Site Option: VV2. This site has a smaller footprint than VV3 and avoids potential conflicts with overhead electrical utility lines. The inclusion of VV2 would result in significant traffic impacts to the Stoddard Wells Road interchange, but these impacts could be mitigated successfully. VV3 was selected as the agency-preferred alternative because Caltrans expressed concern about VV2 having potential conflicts with planned freeway improvements in the area.
- Victorville OMSF Site Option: OMSF 2 (Same as Preferred Alternative)
- Segment 1: Victorville Station 3B to Hodge Road (Same as the Preferred Alternative).
- Segment 2: 2C, Median Option. (Same as the Preferred Alternative). Segment 2C would be side running until L Street in Barstow, where the median option would begin. The median option of Segment 2C reduces the degree of noise, vibration, and visual effects from the perspective of the northern side of the I-15 corridor through Barstow. However, in the median option, noise and vibration impacts would be on both sides of the I-15 corridor, not solely the north side. In addition, constructing the train in the median is more costly, is more difficult to construct and maintain, and poses more highway and rail operational and safety concerns than the side-running options in general.
- Segment 3: 3A, Median. Outside urbanized areas, the median option typically results in fewer impacts to biological and cultural resources, insofar as the median of the freeway is usually a highly disturbed area with relatively few resources. However, the median option is more costly and difficult to construct and maintain

and poses more highway and rail operational and safety concerns than a side-running options.

- Segment 4: 4A (Via Nipton Road). Segment 4 A is the shortest of the three options for Segment 4, but would traverse a 1.55 mile portion of the Mojave National Preserve near Nipton Road. Segment 4A would avoid and/or minimize the impacts associated with Segment 4C, including fragmentation of wildlife/habitat areas, severance of grazing lands, and impact to hydrological features. Segment 4A was not identified as the Preferred Alternative, as there is no authority for the NPS to grant a ROW through the Mojave National Preserve.
- Segment 5: 5A Median. Outside of the urbanized areas, the median option typically results in fewer impacts to biological and cultural resources, insofar as the median of the freeway is usually a highly disturbed area with relatively few resources. However, the median option is more costly and difficult to construct and maintain and poses more highway and rail operational and safety concerns than side-running options.
- Segment 6: 6A Median. Segment 6 comprises an area that transitions from relatively undeveloped desert in the south to the heart of metropolitan Las Vegas in the north. However, the median is more costly and difficult to construct and maintain and poses more highway and rail operational and safety concerns than the side-running options.
- Las Vegas Station: Of the site options analyzed, no particular site has a clear environmental impact advantage as the four Las Vegas Station Site options do not substantially differ in terms of potential environmental impacts. All Las Vegas Station options would be located within the existing urban context of the metropolitan Las Vegas area. However, the Las Vegas Central Station B and Las Vegas Downtown sites would result in the displacement of industrial uses, whereas the Las Vegas Central Station A and the Las Vegas Southern Station site options would be developed on either an existing surface parking area or undeveloped parcel with no business displacements. The Southern Station would allow for the shortest overall rail length while achieving reasonable proximity to the visitor-serving attractions in the Las Vegas Strip and proximity to McCarran International Airport.
- Las Vegas Maintenance and Storage Facilities: Wigwam MSF and Frias Substation (Same as Preferred Alternative). Although the Wigwam MSF option requires the relocation of existing businesses, the Robindale MSF is closer to residential development, posing a potential land use conflict. Moreover, the Relocated Sloan Road MSF site is outside the boundary of urban infrastructure districts, such as water and wastewater, thus requiring either connections to urban infrastructure or costly transport of water/sewage to and from the site.
- Technology Option: EMU
- Temporary Construction Areas: These are based on the alignment alternative selected. They are described in more detail in Table F-2-6 of the Final EIS.

#### ***4.3. Agency Preferred Alternative / Selected Alternative***

FRA, FHWA, BLM, NPS and the STB have considered analysis of the No Action Alternative, Action Alternatives, and project modifications and additions presented in the Draft EIS and the Supplemental Draft EIS, as well as all public and agency comments received during the review periods for both the Draft EIS and Supplemental Draft EIS, in defining the Preferred Alternative. After comparing this information, the FRA and the Cooperating Agencies identified the Preferred Alternative in the Final EIS, which has a thorough comparative analysis of the various action alternatives and the no action alternative. The Preferred Alternative, which is described below, will fulfill the FRA and Cooperating Agencies' statutory missions and responsibilities, and gives consideration to economic, environmental, technical, and other factors.

The Preferred Alternative consists of an approximately 200-mile rail corridor between Victorville, California and Las Vegas, Nevada consisting of the following rail alignments and station/maintenance facilities (see this ROD's Appendix A, Maps):

- Victorville Station Site Option: VV3B
- Victorville OMSF Site Option: OMSF 2
- Segment 1 Victorville Station 3B to Hodge Road.
- Segment 2C Side Running
- Segment 3B Modified
- Segment 4C
- Segment 5B
- Segment 6B
- Las Vegas Station Site: Both the Las Vegas Southern Station as well as the Central Station B sites have been included in the Agency Preferred Alternative. This has been done to allow flexibility to further evaluate the cost/benefit of the two station sites before selecting one for construction and operation. Each of these station sites would have fewer environmental effects as compared to the other station alternatives. These alternatives both involve private lands, and would not require a ROW grant from the BLM.
- Las Vegas MSF Site Option: Wigwam MSF
- Las Vegas MSF Substation: Frias Substation
- Train Technology: EMU
- Temporary Construction Areas All Action Alternatives include the use of the Temporary Construction Areas (TCAs), which are detailed in Table F-2-6 of the Final EIS.

This Preferred Alternative differs from the DXE's Proposed Alternative in the selection of Segment 3B.(See Section 4.1.2 above). The Preferred Alternative differs from the Environmentally Preferred Alternative the following ways:

- Victorville Station Site Option:
  - Environmentally Preferable Alternative: VV2
  - Selected Alternative: VV3B
- Segment 3:
  - Environmentally Preferable Alternative: 3A, Median
  - Selected Alternative: 3B Modified

- Segment 4:
  - Environmentally Preferable Alternative: 4A (Via Nipton Road)
  - Selected Alternative: 4C
- Segment 5:
  - Environmentally Preferable Alternative: 5A Median
  - Selected Alternative: 5B
- Segment 6:
  - Environmentally Preferable Alternative: 6A Median
  - Selected Alternative: 6B

As explained in Section 4.2, above, although the BLM determined that the median option was environmentally preferable, the ROW alternative would be less costly and difficult to construct and maintain. Additionally, the median alternative poses more highway and rail operational and safety concerns than the ROW alternative.

As discussed in Section 1.5 of the Final EIS, Relationship to Other Federal Agency Policies, Plans, and Programs, in addition to FRA as the lead federal agency, the Cooperating Agencies involved with the project and responsible for signing records of decision following publication of the Final EIS include the BLM, STB, FHWA, and the NPS. In addition, Caltrans and NDOT have participated in an EIS Working Group.

The Preferred Alternative is the alternative that FRA, FHWA, BLM, NPS, and STB believe would most closely align with their statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors. FRA held regular meetings with the Cooperating Agencies and EIS Working Group throughout preparation of the Draft EIS and Supplemental Draft EIS (refer to Chapter 4.0, Comments and Coordination of the Final EIS) and during preparation of the Final EIS.

As lead agency, FRA was responsible for considering the recommendations of FHWA, BLM, NPS, and STB in selecting the Preferred Alternative.

## **5. Agency and Public Involvement**

### ***5.1. Scoping***

The FRA initiated the formal scoping process by publishing a Notice of Intent (NOI) to prepare an EIS in the Federal Register on July 14, 2006.

Three public scoping meetings were held as part of the public scoping process:

- Las Vegas Area: July 25, 2006, 5:00 – 8:00 p.m., The White House, 3260 Joe Brown Drive;
- Barstow Area: July 26, 2006, 12:00 – 2:00 p.m., Ramada Inn, 1571 East Main Street; and
- Victorville Area: July 26, 2006, 5:00 – 8:00 p.m., San Bernardino County Fair Grounds, 14800 Seventh Street, Building 3.

These meetings provided an opportunity for the public and agencies to comment on the scope of the environmental topics that would be analyzed in the EIS.

### ***5.2. Draft EIS Comment Period***

FRA initiated the public review and comment period of the Draft EIS by publishing a Notice of Availability (NOA) of a Draft EIS in the Federal Register on March 27, 2009. FRA mailed notice of the Draft EIS availability to approximately 2,500 individuals on the project mailing list (including property owners within 500 feet of the proposed rail alignments). The notice included information on how to obtain a copy of the Draft EIS, the deadline for commenting on the document, a brief description of the Action Alternatives and proposed elements of the project, and the date, location, and time of the public hearings. This information was also published in a notice in the Victorville Daily Press, the Barstow Desert Dispatch, the Las Vegas Sun, and the Las Vegas Review-Journal.

Three public hearing were held:

- Las Vegas Area: April 28, 2009, 5:30 – 8:00 p.m., Hampton Inn Tropicana, 4975 Dean Martin Drive;
- Barstow Area: April 29, 2009, 5:30 – 8:00 p.m., Ramada Inn, 1511 East Main Street; and
- Victorville Area: April 30, 2009, 5:30 – 8:00 p.m., Green Tree Golf Course, 14144 Green Tree Boulevard.

FRA placed copies of the Draft EIS and appendices at the following libraries:

- Victorville City Library, 15011 Circle Drive, Victorville, CA 92395;
- Barstow Library, 304 East Buena Vista, Barstow, CA 92311; and
- Las Vegas Library, 833 Las Vegas Boulevard North, Las Vegas, NV 89101

FRA also made electronic versions of the Draft EIS and appendices accessible through FRA's website: <http://www.fra.dot.gov/rpd/freight/1703.shtml>

### ***5.3. Draft Supplemental EIS Comment Period***

FRA initiated the public review and comment period of the Supplemental Draft EIS by publishing an NOA of a Supplemental Draft EIS in the Federal Register on September 3, 2010.

FRA mailed notice of the Supplemental Draft EIS availability to approximately 2,500 individuals on the project mailing list (including property owners within 500 feet of the proposed rail alignments). This list was updated in June 2010 to help ensure greater accuracy. The notice included information on how to obtain a copy of the Supplemental Draft EIS, the deadline for comments to be submitted, a brief description of the project modifications and additions since publication of the Draft EIS, and the date, location and time of two public hearing held in the project area. This information was also published in a notice in the Victorville Daily Press, the Barstow Desert Dispatch, the Las Vegas Sun, and the Las Vegas Review-Journal.

Two public hearings were held:

- Las Vegas Area: October 13, 2010, 5:30 – 8:00 p.m., Hampton Inn Tropicana, 4975 Dean Martin Drive; and
- Victorville/Barstow Area: October 14, 2010, 5:30 – 8:00 p.m., Lenwood Hampton Inn, 2710 Lenwood Road, Barstow, CA.

FRA placed copies of the Supplemental Draft EIS and appendices at the following libraries:

- Victorville City Library: 15011 Circle Drive, Victorville, CA 92395;
- Barstow Library: 304 East Buena Vista, Barstow, CA 92311;
- Las Vegas Library: 833 Las Vegas Boulevard North, Las Vegas, NV 89101; and
- Clark County Library: 1401 E. Flamingo, Las Vegas, NV, 89119.

FRA also made electronic versions of the Supplemental Draft EIS and appendices available through FRA's website.

### ***5.4. Final EIS Comment Period***

FRA announced the availability of the Final EIS in the Federal Register on April 1, 2011. The Final EIS was mailed out to affected and interested parties. In addition, FRA place copies of the Final EIS and appendices at the following libraries:

- Victorville City Library: 15011 Circle Drive, Victorville, CA 92395;
- Barstow Library: 304 East Buena Vista, Barstow, CA 92311;
- Las Vegas Library: 833 Las Vegas Blvd., Las Vegas, NV 89101;
- Clark County Library: 1401 Flamingo Road, Las Vegas 89119.

FRA also made electronic versions of the Final EIS and appendices available through FRA's website.

FRA has prepared responses to all comments received on the Final EIS. Comments and FRA's responses have been compiled and organized by topic and are presented in tabular form in Appendix C.

### ***5.5. Consultation and Coordination with other Agencies/Entities***

The FRA has consulted with the Cooperating Federal Agencies (BLM, STB, FHWA, and NPS) as well as state agencies, resource agencies, and other governmental agencies in the preparation of the Final EIS.

#### **5.5.1. United States Fish and Wildlife Service**

Under Section 7 of the Endangered Species Act, as amended (ESA, 16 U.S.C. 1531 et seq.) a federal agency that authorizes, funds, or carries out a project that "may affect" a listed species or its critical habitat must consult with the USFWS. The FRA submitted a draft Biological Assessment in December 2010 in accordance with Section 7 of the ESA for potential effects to Desert tortoise (*Gopherus agassizii*), least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*). The USFWS issued a BO for the DesertXpress Project on April 26, 2011, which is provided in Appendix B of this ROD.

#### **5.5.2. National Historic Preservation Act and Tribal Consultation**

Section 106 of the NHPA (16 U.S.C. 470) requires federal agencies to take into account the effects that their approvals and federally funded activities and programs have on historic properties, and designates "historic properties" as those properties that are included in, or eligible for, the National Register of Historic Places. The FRA initiated consultation for the DesertXpress Project under Section 106 of the NHPA. In cooperation with BLM, the FRA conducted government-to-government consultation with the San Manuel Band of Mission Indians, the Soboba Band of Luiseño Indians, the Chemehuevi Reservation, the Las Vegas Paiute Tribe, the Fort Mojave Indian Tribe, the Ti'At Society, the Colorado River Indian Tribes, the Morongo Band of Mission Indians, the Kern Valley Indian Council, the Timbisha Shoshone, the Serrano Band of Indians, the Moapa Band of Paiutes, and the Twenty-Nine Palms Band of Mission Indians concerning properties of traditional religious and cultural significance. As a result of the Native American Consultation process, many important cultural resources were identified in the project area, and subsequently avoided in the Selected Alternative. A PA for this project was executed in February, 2011, by signature between the lead and cooperating federal agencies and the SHPOs, for Nevada and California pursuant to 36 C.F.R. 800.14(b). The PA is provided in Appendix F-H of the Final EIS.



### **5.5.3. United States Army Corps of Engineers**

Concurrently with the NEPA process, DXE initiated the CWA Section 404 permitting process with the USACE in May 2010. The CWA Section 404 established a program to regulate the discharge of dredged or fill material into waters of the US, including wetlands. As part of this CWA Section 404 permitting process, DXE prepared two formal jurisdictional delineation reports for the Ivanpah Valley area and the Las Vegas watershed. Jurisdictional determination and issuance of a permit for the discharge of fill material into waters of the US associated with construction of the DesertXpress project will be part of the CWA Section 404 permit process administered by the USACE.

The Applicant will apply for certification under Section 401 of the CWA. Section 401 Certification is administered in California through the Regional Water Quality Control Boards (in the case of the DesertXpress project the Lahontan Regional Water Quality Control Board) and in Nevada by the Nevada Division of Environmental Protection. Issuance of the CWA Section 404 permit by the USACE, and Section 401 Certification, are anticipated to follow issuance of the Record of Decision but will be required before NTPs are issued for relevant segments.

### **5.5.4. Consultation with other Agencies**

See discussion under Section 3.5.3 Plan Decision Criteria: Conform to local Plans whenever possible.

The project is exempt from State and local land use and environmental laws. However, the FRA and Cooperating Agencies consulted with state, regional and local agencies as part of one or more of the following project phases: planning, scoping, public review of the Draft EIS and Supplemental Draft EIS, and public review of the Final EIS.

In addition to the NEPA coordination process, DXE may have to obtain permits and other approvals from other agencies or comply with requirements of other agencies that did not provide written input on the project and/or the EIS.

## **6. Errata**

The following lists minor corrections to the Final EIS. In all of the cases below, typographical or editing errors resulted in the misstatement of certain environmental effects. None of these errors materially affected the environmental analysis or the decision-making of FRA and BLM.

Final EIS p. 3.3-6, Table F-3-3-2 – Farmlands:

The table incorrectly stated that 0.31 acres of farmland would be affected by Segment 3A. The correct amount is 0.0 acres (no effect).

Final EIS p. 3.7-16 and 3.15-24, regarding archaeological resource CA SBR (00)885:

Table F-3-7-1 on p. 3.7-16 erroneously indicates that this resource is in the APE; Table F-3.15-2 on p. 3.15-24 correctly states that this resource is outside the APE.

Final EIS p. 3.7-10, Section 3.7.2.3: The text overstates the total number of cultural resources potentially affected by the Project.

"Preferred Alternative": The count of cultural resources affected by the Preferred Alternative assumed the construction of Segment 4C. The accurate numbers of cultural resources associated with this alternative are noted below:

92 resources assumed eligible

38 resources previously identified as eligible

109 resources previously identified as not eligible

Total: 239 resources (not 254 as noted on Final EIS p. 3.7-10)

Segment 4A: The Selected Alternative identified in the ROD includes Segment 4A and notes Segment 4C as a contingent alternative if legislative action to permit the implementation of Segment 4A is not adopted.

For clarification purposes, the number of cultural resources associated with the Selected Alternative incorporating Segment 4A instead of Segment 4C is as follows:

90 resources assumed eligible

37 resources previously identified as eligible

98 resources previously identified as not eligible

Total: 225 resources

Final EIS p. 3.9-7, Table F-3.9-2 - Geology and Soils included two misstatements of comparative geologic impacts:

Surface Fault rupture risk: The table overstated the likelihood of surface fault rupture for Segments 4A and 4C. These should have been noted as having "low" risk of surface fault rupture.

Ground shaking risk: The risk for Segment 6B has been the same as noted for Segments 6A and 6C: low to moderate.

Final EIS p. 3-14-39, Table F-3.14-1, Table I of 3:

The table overstated the amount of desert tortoise impacts related to Segment 6A: the correct amounts are 0.0 for both permanent and temporary effects. The table incorrectly stated 40.2 acres of permanent impact and 116.6 acres of temporary impact.

Final EIS p. 3.i4-42, Table F-3.14-1, Table 2 of 3.

The table overstated the acreage of Mohave ground squirrel (MGS) temporarily affected by Segments 3A and 3B. The correct amounts for both Segment 3A and 3B is zero.

## 7. Final Agency Action

### 7.1. Right-of-Way Grant Authorization

After considering the full agency and public record for the application for a right-of-way to construct, operate, maintain, and terminate the DesertXpress Project, I have determined that the BLM shall proceed with implementation of the DesertXpress Project subject to the terms and conditions contained in this Record of Decision and attached hereto. Although the BLM will not physically build and operate the DesertXpress Project, it will continue to have responsibility for overseeing its implementation on public lands and protecting public resources. The BLM will continue working closely with DesertXpress Enterprises, LLC and other federal and state agencies involved in the DesertXpress Project to ensure protection of the public interest.

In accordance with section 202 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1712), the regulations implementing the Act's land use planning provisions (43 C.F.R. Subparts 1601 and 1610), section 102(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(C)) and the regulations of the Council on Environmental Quality and the Department of the Interior regulations implementing NEPA (40 C.F.R. Parts 1500-1508, 43 C.F.R. Part 46), *I approve the following:*

*a right-of-way grant will be offered to DesertXpress Enterprises, LLC for construction, operation, maintenance, and termination of the authorized facilities of the DesertXpress Project across public lands administered by the BLM.*

The 30-year right-of-way grant is for a right-of-way of varying width for a double track, electric powered high-speed passenger rail system, and ancillary facilities, including operation, maintenance, and service facilities, passenger facilities, transformer sites, electrical distribution lines and access/service roads. This right-of-way, subject to terms and conditions contained in the right-of-way grant and Plan of Development, will terminate in 30 years unless, prior to that time, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of the grant or by any applicable federal law or regulation. The grant is subject to renewal. If renewed, the right-of-way grant shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the federal authorized officer deems necessary to protect the public interest.

The approved route, ancillary facilities, and temporary work areas are described in detail in the Final EIS, and depicted on the Facility Alignment Sheets in the Plan of Development.

All adopted mitigation measures listed in Appendix D of this ROD shall be incorporated into the right-of-way grant as terms and conditions. DesertXpress Enterprises, LLC shall therefore comply with:

- all terms and conditions of this ROD
- all terms and conditions set forth in the right-of-way grant;

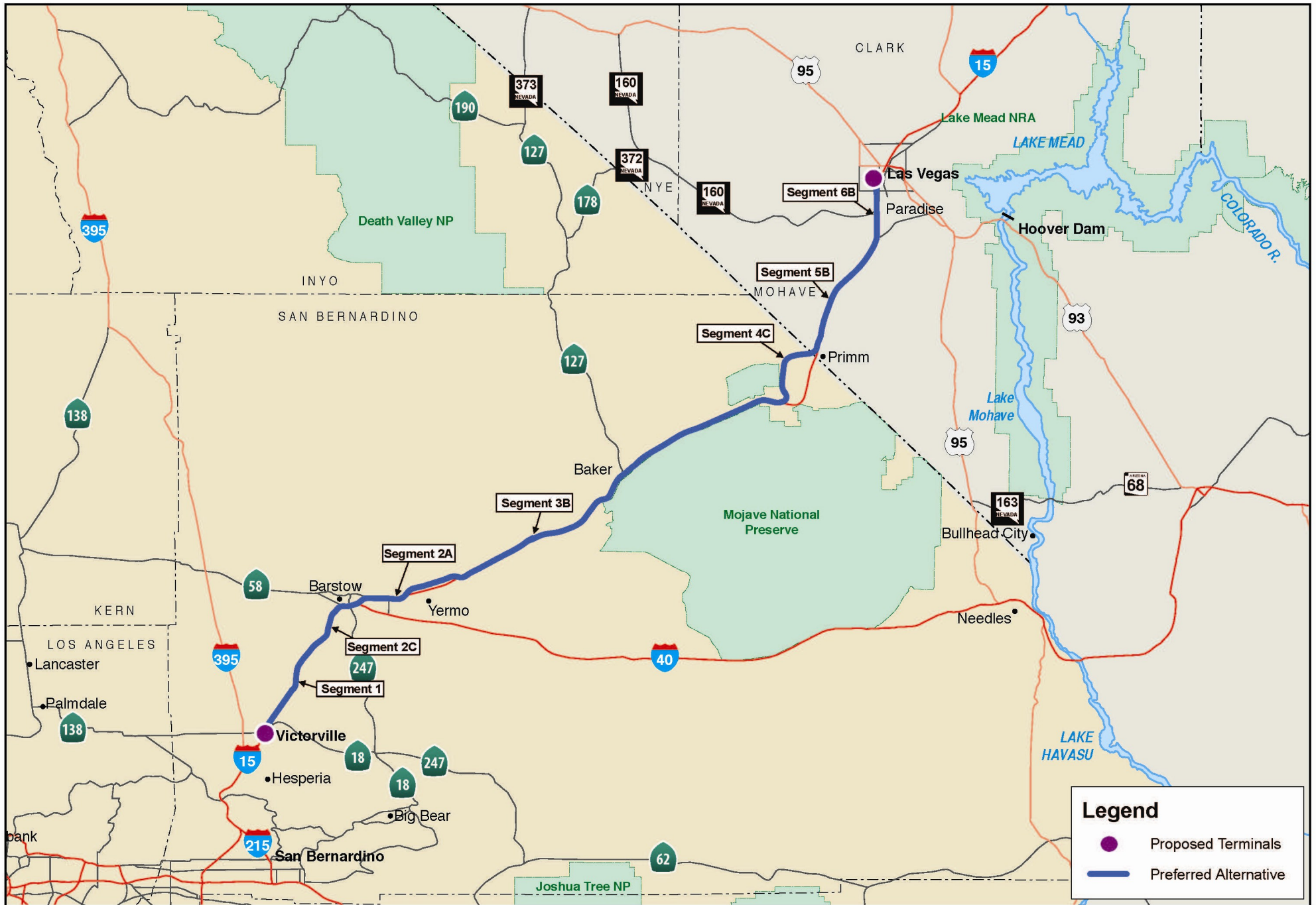
- the Biological Opinion issued by the FWS; and
- the Programmatic Agreement regarding the management of cultural resources.

Within 30 days after the date of publication in the Federal Register of this decision, an adversely affected party has the right to appeal to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations at Title 43 Code of Federal Regulations, Section 4.411.

Approved by:



James G. Kenna  
State Director  
Bureau of Land Management  
California State Office



U. S. Department  
of Transportation  
**Federal Railroad  
Administration**

## DesertXpress Record of Decision

Project Location

**FIG 1**

Source: CirclePoint, 2011.



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Ventura Fish and Wildlife Office  
2493 Portola Road, Suite B  
Ventura, California 93003

IN REPLY REFER TO:  
81440 2011-F 0122

April 26, 2011

David Valenstein  
Environment and Systems Planning Division  
Federal Railroad Administration  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Subject: Biological Opinion on DesertXpress High-Speed Train Project, Victorville,  
California to Las Vegas, Nevada (8-8-11-F-10)

Dear Mr. Valenstein:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion regarding the effects on the federally threatened desert tortoise (*Gopherus agassizii*) and its designated critical habitat of the Federal Railroad Administration's (FRA) proposal to authorize and permit the DesertXpress high-speed passenger train project. This review is in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). DesertXpress Enterprises, LLC (DesertXpress) proposes to construct and operate a fully grade-separated, double-track passenger-only railroad along an approximately 200-mile corridor, from Victorville, California, to Las Vegas, Nevada. We received your December 14, 2010, request for formal consultation on December 16, 2010.

This biological opinion is based on information which accompanied your request for consultation, including the biological assessment (ICF International 2010), as well as further information or details we have received via electronic mail and conference calls. A complete record of this consultation can be made available at the Ventura Fish and Wildlife Office.

## Consultation History

The biological assessment mentions that electrical lines associated with the proposed project would cross the Mojave River near Victorville and that the least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*), both federally endangered species, could potentially occur in riparian habitat associated with the river. This section of the Mojave River is also designated critical habitat for the southwestern willow flycatcher; however, the biological assessment does not mention avoidance measures to ensure these species will not be affected by the project.





Subsequently, on a conference call on February 24, 2011, the FRA, DesertXpress, and the Service determined this issue needed to be addressed and agreed on certain measures that would be implemented to avoid impacts. DesertXpress is proposing to design and construct the utility line in a manner that places the utility poles outside of riparian vegetation along the Mojave River. The conductors would be placed at a height over the riparian vegetation that avoids the need for vegetation management within the riparian habitat. Required construction and maintenance of the facilities will take place between September 16 and April 14 to avoid the nesting period of the least Bell's vireo. (The southwestern willow flycatcher begins nesting at a later date and concludes breeding at roughly the same time as the least Bell's vireo.) An acceptable alternative would be to conduct Service-defined protocol surveys to determine whether individuals of the species are present in the immediate project area. If the protocol surveys determine individuals of the species are not present, DesertXpress would be free to construct or maintain the utility line at any time during the year. If the surveys determine the species is present, the applicant would continue to abide by the construction and maintenance timeframes described above to avoid the nesting period. Because DesertXpress will implement these avoidance measures, the FRA has determined the project would result in no effect to these species or critical habitat of the southwestern willow flycatcher (Messenger 2011a). The Service acknowledges the FRA's determination; we will not discuss the least Bell's vireo or the southwestern willow flycatcher and its critical habitat further in this biological opinion.

The Service electronically mailed a draft biological opinion to FRA on April 5, 2011 and received comments on the draft, via electronic mail from FRA on April 19, 2011 (Messenger 2011b). The Service sent final responses to those comments back to FRA on April 21, 2011 (Service 2011), and a follow-up conference call was held on April 25, 2011 to verify all changes made within this final biological opinion.

## BIOLOGICAL OPINION

### DESCRIPTION OF THE PROPOSED ACTION

We summarized the following description of the proposed action from the biological assessment (ICF International 2010), unless otherwise noted. The proposed action includes the construction, operation, and maintenance of approximately 200 miles of rail alignment, passenger stations, maintenance facilities, autotransformers and substations, electrical transmission lines, and temporary construction areas. DesertXpress is proposing to develop the detailed project plans through a design-build process. The design-build process involves developing detailed engineering designs after the record of decision has been signed; thus, the biological assessment lacks some detailed information that it might otherwise include. Once the design has been completed, the proposed project would be constructed within a period of approximately 48 months, including simultaneous construction on multiple segments.

The FRA is the lead Federal agency, intending to authorize and permit the proposed action under the Act. FRA is the National Environmental Policy Act lead, as well as providing clearance for



and ensuring safety of a train. The Bureau of Land Management (BLM) manages the use of public lands in the action area; the Surface Transportation Board has jurisdiction over the construction, acquisition, operation, and abandonment of rail lines, railroad rates and services, and rail carrier consolidations and mergers; and the Federal Highway Administration has jurisdiction over the use and modification of the Interstate highway right-of-way.

### **Rail Alignment Features**

The components of the rail alignment would include a 75-foot-wide permanent right-of-way, including the rail bed with tracks spaced 15 feet apart, concrete barriers, overhead electrical distribution and transmission lines, fencing, and access and maintenance areas. The 75-foot right-of-way would also include culverts, bridges, and overcrossing structures at drainage crossings. A 162.5-foot temporary construction area would extend beyond the permanent corridor.

### **Physical Facilities**

#### *Victorville Passenger Station*

The Victorville Passenger Station would be a permanent facility located at the southwestern portion of the interchange of Interstate 15 and Dale Evans Parkway (also known as Bell Mountain Road). The facility would be composed of station buildings, a parking lot and associated structures, and utilities within the proposed project footprint.

#### *Victorville Operations, Maintenance, and Storage Facility*

The Victorville Operations, Maintenance, and Storage Facility (OMSF) would be located immediately south of Victorville Passenger Station. The facility would include a train-washing facility, repair shop, parts storage, and operations control center.

#### *Autotransformers and Substations*

The passenger train would operate by electrical multiple unit technology propulsion power delivered along the project right-of-way by an overhead contact electrical distribution system with poles and conductors. Preliminary engineering identified the need for 17 autotransformers, spaced at 10- to 12-mile intervals along the alignment.

#### *Maintenance-of-way Facility*

The Maintenance-of-way Facility (MOW) facility would be contained in a 5,200-square-foot building, plus tail tracks, a radio signal tower, fuel storage, and other related facilities that would serve as a headquarters for DesertXpress employees charged with daily inspection of tracks and associated facilities to ensure ongoing safe operations.

#### *Utility Corridors*

The proposed action includes two utility corridors, including connections at the Victorville OMSF and Baker MOW to connect the project to electricity sources. The utility corridors

associated with the Victorville OMSF and the Baker MOW would be approximately 6 miles and 1.2 miles in length, respectively. Each utility corridor right-of-way would be 100 feet wide and a permanent access road, approximately 10 feet wide, would be within the right-of-way. The utility line towers would range in height from 95 feet to 135 feet, depending upon land mark clearance. Tower spacing would range from 440 feet to 940 feet depending on tower height and necessary clearance.

#### *Temporary Construction Areas*

Temporary construction areas (TCA) would be used during construction for project lay-down and temporary storage of construction materials. A total of 16 sites spread out along the rail alignment are identified for temporary construction use. Of these, 12 are for temporary use only; the remaining 4 are associated with permanent facilities. See Final EIS Table 2.4.3 for more detail (FRA 2011). The entire TCA would be bladed and graded with all vegetation removed. It would then be rehabilitated and restored once construction is completed. The TCAs are located both within and outside of the rail alignment right-of-way. The following discussion of the segment components describes the locations of the TCAs.

### **Segment Components**

Segments 1, 2c, and 3b would lie entirely in California. Segment 4c would lie mostly in California, with a small portion in Nevada. Segments 5b and 6b would be built in Nevada. Each segment would be composed of the rail alignment and the additional facilities we described previously in this biological opinion.

#### *Segment 1*

Segment 1 of the rail alignment would begin at the proposed Victorville Passenger Station and utility corridor, run along the northwest side of Interstate 15, and connect with Segment 2c near Lenwood Road, approximately 7 miles southwest of the community of Lenwood. The segment would include the Victorville Passenger Station, the Victorville OMSF, autotransformers 2 and 3, and a 230-kV utility corridor.

#### *Segment 2C*

Segment 2C would run along the northwest side of Interstate 15 through Lenwood, central Barstow, and eastward to Yermo. It would then connect to Segment 3b just east of Yermo. In central Barstow, the rail alignment would cross the Mojave River on a new bridge immediately adjacent to the existing southbound Interstate 15 bridge. In the vicinity of the Interstate 15/Fort Irwin Road interchange just west of Yermo, the rail alignment would divert from the existing freeway corridor and would follow a northerly course around the community of Yermo for approximately 9 miles. It would reconnect with the freeway corridor approximately 1 mile east of the Interstate 15/Yermo Road interchange, where Segment 2C would connect with Segment 3b. This segment would also include TCAs 2C1 and 5, and autotransformer sites 4 and site 5a.

*Segment 3B*

Segment 3B would be located alongside Interstate 15, predominately along the north side, within the existing freeway right-of-way from Fort Irwin Road to Mountain Pass, a distance of approximately 85 miles. Grade-separated elevated structures would be incorporated for crossing roadways and at the interchanges, from the on-off ramps. This segment would also include TCAs 6, 7, 8, 9, and 10; autotransformer sites 6 through site 12; the Baker MOW facility; and the Baker utility corridor. Just west of Mountain Pass, Segment 3b would connect to Segment 4C.

*Segment 4C*

Segment 4C would leave the freeway right-of-way at Mountain Pass and extend north, passing through three new dual track tunnels through the Clark Mountains. It would travel northwardly from the Clark Mountains and turn east to cross the California-Nevada state line and connect back to the freeway corridor north of Primm. Here, the segment would connect with Segment 5B. This segment would also include TCAs 4C1 through 4C5 and autotransformer sites 13 and 14.

*Segment 5B*

Segment 5B would be located on the east side of Interstate 15 within the freeway right-of-way between Primm and Jean. It would cross back to the west side of the freeway at the existing Union Pacific Railroad tracks south of Sloan. Upon crossing over to the west side of the freeway, Segment 5b would connect with Segment 6B. This segment would also include TCA13 and autotransformer site 15.

*Segment 6B*

Segment 6B would be located along the west side of Interstate 15 primarily within the freeway right-of-way. It would be constructed at-grade until reaching the interchange of Interstate 15/Blue Diamond Road in the Las Vegas metropolitan area, where the rail alignment would transition to an elevated structure through Las Vegas. This segment would also include autotransformer site 16B.

**Minimization Measures***General Protective Measures*

To minimize adverse effects to the desert tortoise, DesertXpress will implement the following protective measures. We have summarized the measures from the biological assessment (ICF International 2010); we have slightly modified these measures in response to comments by the FRA and DesertXpress on the draft biological opinion (Messenger 2011b).

All personnel working within the project area will attend an environmental awareness training program. The program will be presented by Service-authorized biologists (hereafter 'authorized biologists' and include information on the life history of the desert tortoise, the legal protection it is afforded by the Endangered Species Act, the definition of "take" for listed species, measures to protect the desert tortoise, reporting

requirements, specific measures that each worker will need to employ to avoid adverse impacts on desert tortoises, a detailed description of environmental project commitments as described in the decision records (i.e., record of decision), right-of-way grants, and biological opinion, and penalties for violation of Federal and state environmental laws.

The following measures will be implemented during project construction:

1. Authorized biologists will be on site during any construction activity within or near desert tortoise habitat to ensure the implementation and compliance of environmental commitments and avoidance measures.
2. Authorized biologists will have the authority to stop work if dangers to desert tortoises arise, and to allow work to proceed after the hazard has been removed. The Southern Nevada and Ventura Fish and Wildlife Offices, BLM Offices, and the California Department of Fish and Game must be notified of any desert tortoise injury or death resulting from project-related activities.
3. As part of the monitoring, the authorized biologists will check construction areas immediately before construction activities each day to ensure that no desert tortoise has moved into the construction area. If desert tortoises are discovered within the construction area, they will be relocated to adjacent habitat approximately 300 feet from the limit of disturbance (i.e., beyond the 162.5-foot temporary construction area).
4. The authorized biologists will ensure proper implementation of protective measures, record and report desert tortoise and sign observations in accordance with approved protocol, report incidents of noncompliance in accordance with the biological opinion and other relevant permits and authorizations, and move desert tortoises from harm's way and place these animals in adjacent habitat approximately 300 feet of the limit of disturbance.
5. All construction activities will be confined to the designated work areas. Grubbing of vegetation will only be done to the extent necessary for construction and will be limited to areas designated for that. Overnight parking and storage of equipment and materials will be limited to previously disturbed areas or areas identified in the BLM right-of-way grant.
6. All vehicle traffic will be restricted to existing paved roads and the project alignment within the permanent or temporary construction area. Disturbance beyond the construction area would be prohibited except in emergency situations.
7. Construction vehicles within sensitive species habitat will not exceed 15 miles per hour.

8. A litter-control program will be implemented during construction. The program will include the use of covered, common raven-proof trash receptacles, daily removal of trash from work areas to the trash receptacles, and proper disposal of trash in a designated solid waste disposal facility. Precautions will also be taken to prevent trash from blowing out of construction vehicles.
9. DesertXpress will promptly remove all road-killed animals with the project construction area and the permanent rail alignment to reduce the adverse effects associated with predation of desert tortoise by common ravens (*Corvus corax*).
10. No pets or firearms will be permitted in the work area.
11. Both pre- and post-construction photographs will be taken to document sensitive habitat conditions within the limits of project disturbance.
12. During construction, DesertXpress will perform weekly inspections and weed removal/control during the growing season of all construction areas, rail alignment, and facilities. Following the completion of construction activities, from March through August, DesertXpress will continue monitoring and removal monthly during the first 2 years of operation and quarterly for the life of the facility. Weed removal and control will consist of physical control methods (e.g., hand pulling, hoeing, etc.) or herbicide application. A provision of this measure requires preparation of an invasive weed monitoring and treatment plan that would be applicable to all lands affected by the proposed action. This weed control plan will be developed in cooperation with FRA and BLM to ensure that weed control and removal activities do not affect desert tortoises. The use of herbicides to control weeds within the DesertXpress construction and operation area will be coordinated with the BLM and California Fish and Game Department and Nevada Department of Wildlife biologists to ensure the application does not affect desert tortoises. In instances where desert tortoises may come into contact with herbicide, the plan will require manual removal of individual plants. The FRA will ensure the same methods and caution will occur on lands within the action area that are outside of those managed by BLM (Messenger 2011a).

#### *Topsoil Removal and Stockpile*

The construction area topsoil would be removed and stockpiled prior to initiating construction and replaced within areas of temporary disturbance once construction is complete. A vegetation and topsoil removal and restoration plan will be developed and implemented to reduce impacts on biological resources. Any permanent topsoil stabilization measures will be constructed and maintained within the permanent right-of-way. These measures may include, but are not limited to, the use of geo-textile mats or rip-rap to in areas of high erosion potential (Messenger 2011a).

*Installation of Erosion Control Measures*

The installation and maintenance of rice wattles, straw wattles, and silt fencing along the temporary construction area will be used to prevent the sediment from being transported off of the right-of-way during construction. Permanent stabilization measures will be deployed upon completion of construction along washes and in other areas of potential erosion.

*Desert Tortoise Protective Measures*

To minimize adverse effects to the desert tortoise, DesertXpress will fence the boundary of the Victorville Passenger Station and the Victorville OMSF with permanent desert tortoise exclusion fencing. DesertXpress will install desert tortoise guards at gated entries to prevent desert tortoises from gaining entry to the project sites. DesertXpress will also fence the TCAs, the Baker MOW, autotransformers sites and substations, the construction areas for the utility corridors, and the rail alignment's temporary construction area, with temporary desert tortoise fencing prior to clearance surveys and ground disturbance. Proposed construction sites along the alignment that are not located in desert tortoise habitat (i.e., within Barstow, Baker, and Las Vegas) will not be fenced.

To ensure the clearance of all desert tortoises from all potential habitat areas, Service-authorized desert tortoise biologists will conduct clearance surveys as required by the Service. Desert tortoise relocation from the project area will include:

1. The installation of temporary desert tortoise fencing around the perimeter prior to the commencement of on-site construction. Installation of the fencing will be monitored by a qualified biologist to ensure that desert tortoises are not killed or injured during this activity. Temporary desert tortoise fencing will be installed in areas of construction that are beyond the perimeter of the right-of-way or in areas where construction staging will occur. Desert tortoise guards will be installed at construction area entry points and permanent rail alignment maintenance access points. After installation, the fence will be regularly inspected to ensure its integrity. The project proponent will ensure that cross-country travel for construction purposes outside of the areas of desert tortoise fencing is prohibited.
2. The desert tortoise exclusionary fencing may require the use of a desert tortoise guard in areas of high vehicular construction traffic. This device resembles a cattle guard and is positioned at ground level and connected to the exclusionary fencing to prohibit desert tortoise from crossing into the construction area but allowing the passage of construction vehicles. The guard would be maintained throughout its use during the construction process by DesertXpress. Such maintenance would require the presence of an authorized desert tortoise biologist. The guard would have a clear escape route away from construction activity for any desert tortoise that should fall into the guard. The guard would be inspected daily for desert tortoise and to ensure the escape route is free of obstruction. The guard would also be cleared of debris that may allow desert tortoise passage across the guard and into a construction area (Messenger 2011a).

3. Only biologists authorized by the Service will handle desert tortoises and will follow the guidelines within the *Desert Tortoise Field Manual*. Desert tortoises found within the project area will be removed and relocated to undisturbed suitable habitat beyond the construction site and within their own territory, where they may be familiar with alternate burrows. If no burrows are available, artificial burrows will be created following the guidelines within the *Desert Tortoise Field Manual*.
4. After installation of the temporary fencing, the entire project will be surveyed for desert tortoises by a qualified biologist. Following the procedures and precautions outlined in the *Desert Tortoise Field Manual*, all desert tortoise pallets and burrows within the survey areas will be examined and excavated by hand, either by or under the direct supervision of an authorized biologist, and collapsed to prevent re-entry.
5. An authorized biologist will be present during all initial top soil removal, blading, or grading activities within the project area. During project implementation, all workers will inform the qualified biologist if a desert tortoise is found within or near project areas. All work in the vicinity of the desert tortoise, which could injure or kill the animal, will cease and it will be observed until it is moved from harm's way by the authorized biologist.
6. Workers will inspect for desert tortoises under vehicles and equipment before such equipment is moved. If a desert tortoise is present, the worker will wait for it to move out from underneath the vehicle or the authorized biologist will be contacted to remove it.

DesertXpress will replace any previously installed permanent desert tortoise exclusionary fencing along Interstate 15 that is removed during project construction.

#### *Culverts*

DesertXpress proposes to install culverts under the railroad line that match existing Interstate 15 or Union Pacific Railroad culverts. Where the project deviates from the existing transportation facilities, DesertXpress will install culverts at natural drainage features and at regular intervals to allow wildlife to pass under the proposed rail grade. Before construction begins, the culvert design will be approved by the Service, the BLM, California Department of Fish and Game, and Nevada Department of Transportation.

Minimization measures for potential impacts to downstream habitat from Segment 4c include the use of tunnels, aerial crossing structures, at-grade overcrossing structures, and culverts. At a minimum, all ephemeral drainages equal to or greater than 4 feet wide would be avoided by these types of structures. Where tunnels and aerial crossing structures would be used, drainages less than 4 feet in width would also be avoided. If support piles or piers are necessary to support over crossing structures these structures would be located outside of the drainage being over crossed. Authorized biologists would be present during construction to ensure impacts to drainages are avoided or, where an impact is unavoidable, ensure the impact is minimized and

the natural substrate of the drainage that has been disturbed is re-established to original grade and with natural substrate materials within the drainage channel. In addition to the ephemeral drainages over crossed, drainages established (created) or re-established as part of the project's compensatory mitigation for replacement of affected waters of the United States or State of California would be monitored by an agency-approved biologist for a minimum of 5 years to ensure that agency-approved performance standards are met.

### *Compensation*

In addition to habitat restoration, DesertXpress will compensate for habitat disturbance through payment of a per-acre fee for disturbance of desert tortoise habitat in California and Nevada. These funds will be paid to the BLM and used for management actions expected to provide a benefit to the desert tortoise over time. Actions may involve habitat acquisition, population or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species' current status and trends, and preserving distinct population attributes. Specific actions to be funded will be determined during annual meetings between the BLM and Service to identify and prioritize management actions, which may include implementation of range wide monitoring of desert tortoises.

## **ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS**

### **Jeopardy Determination**

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 Code of Federal Regulations 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which describes the range-wide condition of the desert tortoise, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which analyzes the condition of the desert tortoise in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the desert tortoise; (3) the Effects of the Action, which determine the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the desert tortoise; and (4) the Cumulative Effects, which evaluate the effects of future, non-Federal activities in the action area on the desert tortoise.



## **Adverse Modification Determination**

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of the critical habitat of listed species. This biological opinion does not rely on the regulatory definition of “destruction or adverse modification” of critical habitat at 50 CFR 402.02. Instead, we have relied on the statutory provisions of the ESA to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in this biological opinion relies on four components: (1) the *Status of Critical Habitat*, which describes the range-wide condition of designated critical habitat for the desert tortoise in terms of primary constituent elements, the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the *Environmental Baseline*, which analyzes the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on the primary constituent elements and how that will influence the recovery role of the affected critical habitat units; and (4) *Cumulative Effects*, which evaluates the effects of future non-Federal activities in the action area on the primary constituent elements and how that will influence the recovery role of affected critical habitat units.

## **STATUS OF THE SPECIES AND CRITICAL HABITAT**

The following summarizes the rangewide status of the desert tortoise and its designated critical habitat, which includes information on its listing history, recovery plan, recovery and critical habitat units (CHUs), species account, reproduction, population distribution and monitoring, and threats.

### **Listing History**

On August 20, 1980, the Service published a final rule listing the Beaver Dam Slope population of the desert tortoise in Utah as threatened (45 FR 55654). In the 1980 listing of the Beaver Dam Slope population, the Service concurrently designated 26 square miles of the BLM -administered land in Utah as critical habitat. The reason for listing was population declines because of habitat deterioration and past over-collection. Major threats to the desert tortoise identified in the rule included habitat destruction through development, overgrazing, and geothermal development, collection for pets, malicious killing, road kills, and competition with grazing or feral animals.

On August 4, 1989, the Service published an emergency rule listing the Mojave population of the desert tortoise as endangered (54 FR 42270). On April 2, 1990, the Service determined the Mojave population of the desert tortoise to be threatened (55 FR 12178). Reasons for the determination included significant population declines, loss of habitat from construction projects

such as roads, housing and energy developments, and conversion of native habitat to agriculture. Livestock grazing and off-highway vehicle (OHV) activity have degraded additional habitat. Also cited as threatening the desert tortoise's continuing existence were: illegal collection by humans for pets or consumption; upper respiratory tract disease (URTD); predation on juvenile desert tortoises by common ravens, coyotes (*Canis latrans*), and kit foxes (*Vulpes macrotis*); fire; and collisions with vehicles on paved and unpaved roads.

On February 8, 1994, the Service designated approximately 6.45 million acres of critical habitat for the Mojave population of the desert tortoise in portions of California (4,750,000 acres), Nevada (1,220,000 acres), Arizona (339,000 acres), and Utah (129,000 acres) (59 FR 5820-5846, also see corrections in 59 FR 9032-9036), which became effective on March 10, 1994.

### **Recovery Plan**

On June 28, 1994, the Service approved the final Desert Tortoise (Mojave Population) Recovery Plan (1994 Recovery Plan) (Service 1994). The 1994 Recovery Plan divided the range of the desert tortoise into 6 recovery units and recommended establishment of 14 desert wildlife management areas (DWMAs) throughout the recovery units. Within each DWMA, the 1994 Recovery Plan recommended implementation of reserve-level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions. The design of DWMAs should follow accepted concepts of reserve design. As part of the actions needed to accomplish recovery, the 1994 Recovery Plan recommended that land management within all DWMAs should restrict human activities that negatively impact desert tortoises (Service 1994). The DWMAs/ACECs have been designated by the BLM through development or modification of their land-use plans in Arizona, Nevada, Utah, and parts of California.

The U.S. General Accounting Office (GAO) Report, *Endangered Species: Research Strategy and Long-Term Monitoring Needed for the Mojave Desert Tortoise Recovery Program* (GAO 2002), directed the Service to periodically reassess the 1994 Recovery Plan to determine whether scientific information developed since its publication could alter implementation actions or allay some of the uncertainties about its recommendations. In response to the GAO report, the Service initiated a review of the 1994 Recovery Plan in 2003. In March 2003, the Service impaneled the Desert Tortoise Recovery Plan Assessment Committee (Committee) to assess the 1994 Recovery Plan. The charge to the Committee was to review the entire 1994 Recovery Plan in relation to contemporary knowledge to determine which parts of the 1994 Recovery Plan needed updating. The recommendations of the Committee were presented to the Service and Desert Tortoise Management Oversight Group on March 24, 2004 (Tracy et al. 2004). The recommendations were used as a guide by a recovery team of scientists and stakeholders to modify the 1994 Recovery Plan.

On November 3, 2004, the Service announced the formation of the DTRO. The DTRO is revising the 1994 Recovery Plan and coordinating with regional recovery implementation work groups to develop 5-year recovery action plans under the umbrella plan. A draft revision of the recovery plan was released to the public on August 4, 2008 (Service 2008). The Service anticipates a final recovery plan in 2011.

The draft recovery plan identifies three recovery objectives:

1. Maintain self-sustaining populations of desert tortoises within each recovery unit into the future.
2. Maintain well-distributed populations of desert tortoises throughout each recovery unit.
3. Ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations.

Recovery objectives and criteria generally will be measured within tortoise conservation areas or other areas identified by Recovery Implementation Teams, and they are not independent of each other but must be evaluated collectively. Recovery does not depend on absolute numbers of tortoises or comparisons to pre-listing estimates of tortoise populations, but rather the reversal of downward population trends and elimination or reduction of threats that initiated the listing.

## **Recovery Units**

### *Northeastern Mojave Recovery Unit*

The 1994 Recovery Plan delineates the Northeastern Mojave Recovery Unit to occur primarily in Nevada, but it also extends into California along the Ivanpah Valley and into extreme southwestern Utah and northwestern Arizona. Vegetation within this unit is characterized by creosote bush scrub, big galleta-scrub steppe, desert needlegrass scrub-steppe, and blackbrush scrub (in higher elevations). Topography is varied, with flats, valleys, alluvial fans, washes, and rocky slopes. Much of the northern portion of the Northeastern Mojave Recovery Unit is characterized as basin and range, with elevations from 2,500 to 12,000 feet. Desert tortoises typically eat summer and winter annuals, cacti, and perennial grasses. Since the northern portion of this recovery unit represents the northernmost distribution of the species, desert tortoises are typically found in low densities (about 10 to 20 adults per square mile). The proposed project would be located in the Northeastern Mojave Recovery Unit.

The Northeastern Mojave Recovery Unit includes the Mormon Mesa, Coyote Spring, Beaver Dam Slope and Gold Butte-Pakoon DWMAs; and a portion of the Piute-Eldorado DWMAs. These areas generally overlap the Mormon Mesa, Piute-Eldorado, Beaver Dam Slope, and Gold Butte-Pakoon CHUs.

Using the U.S. Geological Survey habitat model (Nussear et al. 2009) and a 0.5 probability threshold based on the prevalence approach, the Service estimates that about one half of the Northeastern Mojave Recovery Unit contains potential desert tortoise habitat (approximately 4,853,368 acres). Although this analysis likely omits some marginal desert tortoise habitat, it explains the occurrence of 95 percent of the 938 test points used in the model. This analysis does not consider habitat loss, fragmentation, or degradation associated with human-caused impacts.

#### *Eastern Mojave Recovery Unit*

The 1994 Recovery Plan delineates the Eastern Mojave Recovery Unit to occur primarily in California, but also extends into Nevada in the Amargosa, Pahrump, and Piute valleys. The Ivanpah, Piute-Eldorado, and Fenner DWMAs are included in the Eastern Mojave Recovery Unit which generally overlap the Ivanpah and Piute-Eldorado CHUs in California. In the Eastern Mojave Recovery Unit, desert tortoises are often active in late summer and early autumn in addition to spring because this region receives both winter and summer rains and supports two distinct annual floras on which they can feed. Desert tortoises in the Eastern Mojave Recovery Unit occupy a variety of vegetation types and feed on summer and winter annuals, cacti, perennial grasses, and herbaceous perennials. They den singly in caliche caves, bajadas, and washes. This recovery unit is isolated from the Western Mojave Recovery Unit by the Baker Sink, a low-elevation, extremely hot and arid strip that extends from Death Valley to Bristol Dry Lake. The Baker Sink area is generally not considered suitable for desert tortoises. Desert tortoise densities in the Eastern Mojave Recovery Unit can vary dramatically, ranging from 5 to as much as 350 adults per square mile (Service 1994).

#### *Northern Colorado Recovery Unit*

The 1994 Recovery Plan delineates the Northern Colorado Recovery Unit completely in California. The 874,843-acre Chemehuevi DWMA is the sole conservation area for the desert tortoise in this recovery unit. Desert tortoises in this recovery unit are found in the valleys, on bajadas and desert pavements, and to a lesser extent in the broad, well-developed washes. They feed on both summer and winter annuals and den singly in burrows under shrubs, in intershrub spaces, and rarely in washes. The climate is somewhat warmer than in other recovery units, with only 2 to 12 freezing days per year.

#### *Eastern Colorado Recovery Unit*

The 1994 Recovery Plan delineates the Eastern Colorado Recovery Unit completely in California. The Chuckwalla DWMA and CHU, and a portion of the Joshua Tree DWMA and Pinto Basin CHU, occur in this recovery unit. This recovery unit occupies well-developed washes, desert pavements, piedmonts, and rocky slopes characterized by relatively species-rich succulent scrub, creosote bush scrub, and Blue Palo Verde-Ironwood-Smoke Tree communities. Winter burrows are generally shorter in length, and activity periods are longer than elsewhere due to mild winters and substantial summer precipitation. The desert tortoises feed on summer and winter annuals and some cacti; they den singly.

*Western Mojave Recovery Unit*

The 1994 Recovery Plan delineates the Western Mojave Recovery Unit completely in California. It is composed of the Western Mojave, Southern Mojave, and Central Mojave regions which are exceptionally heterogeneous and have broad, indistinct boundaries due to gradational transitions among sub-regions and with surrounding areas. The central Mojave is topographically and climatically transitional between the southwestern and eastern Mojave Desert. The south-central Mojave is a transitional region to the Colorado/Sonoran Desert, and the southern half of this region is similar climatically and floristically to the eastern Mojave. Many of the differences in vegetation among these regions can be explained by differences in climate, which varies linearly across the range of the desert tortoise. The most pronounced difference between the Western Mojave and other recovery units is in timing of rainfall and the resulting vegetation. Most rainfall occurs in fall and winter and produces winter annuals, which are the primary food source of desert tortoises. Above ground activity occurs primarily in spring, associated with winter annual production. Thus, desert tortoises are adapted to a regime of winter rains and rare summer storms. Here, desert tortoises occur primarily in valleys, on alluvial fans, bajadas, and rolling hills in saltbush, creosote bush, and scrub steppe communities. Desert tortoises dig deep burrows (usually located under shrubs on bajadas) for winter hibernation and summer aestivation. These desert tortoises generally den singly.

Four DWMAs occur wholly or partially within the Western Mojave Recovery Unit: Fremont-Kramer, Ord-Rodman, Superior-Cronese, and Joshua Tree. These areas approximate the Fremont-Kramer, Ord-Rodman, Superior-Cronese, and Pinto Basin CHUs.

*Upper Virgin River Recovery Unit*

The 1994 Recovery Plan delineates the Upper Virgin River Recovery Unit to encompass all desert tortoise habitat in Washington County, Utah, except the Beaver Dam Slope, Utah population. Only the Upper Virgin River DWMA and CHU occur in this recovery unit. The desert tortoise population in the area of St. George, Utah is at the extreme northeastern edge of the species' range and experiences long, cold winters (about 100 freezing days) and mild summers, during which the desert tortoises are continually active. Here the desert tortoises live in a complex topography consisting of canyons, mesas, sand dunes, and sandstone outcrops where the vegetation is a transitional mixture of sagebrush scrub, creosote bush scrub, blackbush scrub, and a psammophytic community. Desert tortoises use sandstone and lava caves instead of burrows, travel to sand dunes for egg-laying, and use still other habitats for foraging. Two or more desert tortoises often use the same burrow.

**Species Account**

The desert tortoise is a large, herbivorous reptile that occurs in portions of California, Arizona, Nevada, and Utah. It also occurs in Sonora and Sinaloa, Mexico. The Mojave population of the desert tortoise includes those desert tortoises living north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, southwestern Utah, and in the Sonoran Desert in California.

Desert tortoises reach 8 to 15 inches in carapace length and 4 to 6 inches in shell height. Hatchlings emerge from the eggs at about 2 inches in length. Adults have a domed carapace and relatively flat, unhinged plastron. Their shells are high-domed, and greenish-tan to dark brown in color with tan scute centers. Desert tortoises weigh 8 to 15 pounds when fully grown. The forelimbs have heavy, claw-like scales and are flattened for digging, while hind limbs are more stumpy and elephantine.

Optimal habitat for the desert tortoise has been characterized as creosote bush scrub in which precipitation ranges from 2 to 8 inches, where a diversity of perennial plants is relatively high, and production of ephemerals is high (Luckenbach 1982; Turner 1982; Turner and Brown 1982). Soils must be friable enough for digging burrows, but firm enough so that burrows do not collapse. Desert tortoises occur from below sea level to an elevation of 7,300 feet, but the most favorable habitat occurs at elevations of approximately 1,000 to 3,000 feet (Luckenbach 1982). Neonate desert tortoises use abandoned rodent burrows for daily and winter shelter; these burrows are often shallowly excavated and run parallel to the surface of the ground.

Desert tortoises are most commonly found within the desert scrub vegetation type, primarily in creosote bush scrub. In addition, they occur in succulent scrub, cheesebush scrub, blackbrush scrub, hopsage scrub, shadscale scrub, microphyll woodland, Mojave saltbush-allscale scrub and scrub-steppe vegetation types of the desert and semidesert grassland complex (Service 1994). Within these vegetation types, desert tortoises potentially can survive and reproduce where their basic habitat requirements are met. These requirements include a sufficient amount and quality of forage species; shelter sites for protection from predators and environmental extremes; suitable substrates for burrowing, nesting, and overwintering; various plants for shelter; and adequate area for movement, dispersal, and gene flow. Throughout most of the Mojave Desert region, desert tortoises occur most commonly on gently sloping terrain with soils ranging from sandy-gravel and with scattered shrubs, and where there is abundant inter-shrub space for growth of herbaceous plants. Throughout their range, however, desert tortoises can be found in steeper, rockier areas (Gardner and Brodie 2000).

The size of desert tortoise home ranges varies with respect to location and year. Desert tortoise activities are concentrated in overlapping core areas, known as home ranges. In the western Mojave Desert, Harless et al. (2007) estimated mean home ranges for desert tortoises to be 111 acres for males and 40 acres for females. Over its lifetime, each desert tortoise may require more than 1.5 square miles of habitat and make forays of more than 7 miles at a time (Berry 1986). In drought years, the ability of desert tortoises to drink while surface water is available following rains may be crucial for desert tortoise survival. During droughts, desert tortoises forage over larger areas, increasing the likelihood of encounters with sources of injury or mortality including humans and other predators.

Desert tortoises spend most of the year in subterranean burrows or caliche caves (Nagy and Medica 1986). Desert tortoises in the west Mojave are primarily active in May and June, with a secondary activity period from September through October. In Nevada and Arizona, desert

tortoises are considered to be most active from approximately March 1 through October 31. Their activity patterns are primarily controlled by ambient temperature and precipitation (Nagy and Medica 1986; Zimmerman *et al.* 1994). In the east Mojave and Colorado Deserts, annual precipitation occurs in both summer and winter, providing food and water to desert tortoises throughout much of the summer and fall. Most precipitation occurs in winter in the West Mojave Desert, resulting in an abundance of annual spring vegetation, which dries up by late May or June. Neonate desert tortoises emerge from their winter burrows as early as late January to take advantage of freshly germinating annual plants through the spring. Under certain conditions desert tortoises may be aboveground any month of the year, particularly during periods of mild or rainy weather in summer and winter.

During active periods, they usually spend nights and the hotter part of the day in their burrow; they may also rest under shrubs or in shallow burrows (pallets). Desert tortoises may use an average of 7 to 12 burrows at any given time (Bulova 1994; TRW Environmental Safety Systems Inc. 1997). Walde *et al.* (2003) observed that desert tortoises retreated into burrows when air temperature reached  $91.0^{\circ}\text{ Fahrenheit (F)} \pm 3.55^{\circ}\text{ F}$  and ground temperatures reached  $94.6^{\circ}\text{ F} \pm 6.05^{\circ}\text{ F}$ ; 95 percent of observations of desert tortoises aboveground occurred at air temperatures less than  $91^{\circ}\text{ F}$ . The body temperature at which desert tortoises become incapacitated ranges from  $101.5^{\circ}\text{ F}$  to  $113.2^{\circ}\text{ F}$  (Naegle 1976; Zimmerman *et al.* 1994).

Although desert tortoises eat nonnative plants, they generally prefer native forbs when available (Jennings 1993; Avery 1998). Consumption of nonnative plants may cause desert tortoises to have a nitrogen and water deficit (Henen 1997). Droughts frequently occur in the desert, resulting in extended periods of low water availability. Periods of extended drought place desert tortoises at even greater water and nitrogen deficit than during moderate or high rainfall years (Peterson 1996; Henen 1997). During a drought, more nitrogen than normal is required to excrete nitrogenous wastes, thus more rapidly depleting nitrogen stored in body tissues. Plants also play important roles in stabilizing soil and providing cover for protection of desert tortoises from predators and heat.

The U.S. Geological Survey modeled desert tortoise habitat across the range of the desert tortoise (Nussear *et al.* 2009). This model, which is based on 3,753 desert tortoise locations, uses 16 environmental variables, such as precipitation, geology, vegetation, and slope. In addition, Nussear *et al.* used 938 additional occurrence locations to test the model's accuracy. Using this model and a 0.5 probability threshold based on the prevalence approach, the Service estimates that there are approximately 20,542,646 acres of potential desert tortoise habitat rangewide. This analysis likely omits some marginal desert tortoise habitat, and it does not consider habitat loss, fragmentation, or degradation associated with human-caused impacts; however, it provides a reference point relative to the amount of desert tortoise habitat.

Further information on the range, biology, habitat, and ecology of the desert tortoise is available in: Bury (1982); Bury and Germano (1994); Ernst *et al.* (1994); Jennings (1997); Service (2008); Tracy *et al.* 2004; Van Devender (2002); and collected papers in Chelonian Conservation and

Biology (2002, Vol. 4, No. 2), Herpetological Monographs (1994, No. 8), and the Desert Tortoise Council Proceedings.

## **Reproduction**

Desert tortoises possess a combination of life history and reproductive characteristics that affect the ability of populations to survive external threats. Desert tortoises grow slowly, require 15 to 20 years to reach sexual maturity, and have low reproductive rates during a long period of reproductive potential (Turner et al. 1984; Bury 1987; Tracy et al. 2004).

Choice of mate is mediated by aggressive male-male interactions and possibly by female choice (Niblick et al. 1994). Desert tortoises in the West Mojave Desert may exhibit pre-breeding dispersal movements, typical of other vertebrates, ranging from 1 to 10 miles in a single season (Sazaki et al. 1995). The advantage of pre-breeding dispersal may be to find a more favorable environment in which to reproduce. However, risks include increased mortality from predation, exposure, starvation, or anthropogenic factors (e.g., motor vehicle mortality).

The average clutch size is 4.5 eggs (range 1 to 8; on rare occasions, clutches can contain up to 15 eggs), with 0-3 clutches deposited per year (Turner et al. 1986). Clutch size and number probably depend on female size, water, and annual productivity of forage plants in the current and previous year (Turner et al. 1984, 1986; Henen 1997). The eggs typically hatch from late August through early October. The ability to alter reproductive output in response to resource availability may allow individuals more options to ensure higher lifetime reproductive success. The interaction of longevity, late maturation, and relatively low annual reproductive output causes desert tortoise populations to recover slowly from natural or anthropogenic decreases in density. To ensure stability or increased populations, these factors also require relatively high juvenile survivorship (75 to 98 percent per year), particularly when adult mortality is elevated (Congdon et al. 1993). Bjurlin and Bissonette (2004) determined that 74 percent of desert tortoise nests survived and, over 2 years, 84 and 91 percent of the neonates survived the initial period of post-hatching dispersal. They predicted that 40 percent of eggs produce hatchlings that survive to hibernation at their study site. Desert tortoises generally lay eggs from mid-May to early July, but occasionally as late as October (Ernst et al. 1994). Eggs are laid in sandy or friable soil, often at the entrance to burrows. Hatching occurs 90 to 120 days later, mostly in late summer and fall (mid-August to October). Eggs and young are untended by the parents.

Desert tortoise sex determination is environmentally controlled during incubation (Spotila et al. 1994). Hatchlings develop into females when the incubation (i.e., soil) temperature is greater than 88.7° F and males when the temperature is below that (Spotila et al. 1994). Mortality is higher when incubation temperatures are greater than 95.5° F or less than 78.8° F. The sensitivity of embryonic desert tortoises to incubation temperature may make populations vulnerable to unusual changes in soil temperature (e.g., from changes in vegetation cover).



At Yucca Mountain in Nye County, Nevada (Northeastern Mojave Recovery Unit), Mueller et al. (1998) estimated that the mean age of first reproduction was 19 to 20 years; clutch size (1 to 10 eggs) and annual fecundity (0 to 16 eggs) were related to female size but annual clutch frequency (0 to 2) was not. Further, Mueller suggested that body condition during July to October may determine the number of eggs a desert tortoise can produce the following spring. McLuckie and Fridell (2002) determined that the Beaver Dam Slope desert tortoise population, within the Northeastern Mojave Recovery Unit, had a lower clutch frequency ( $1.33 \pm 0.14$ ) per reproductive female and fewer reproductive females (14 out of 21) when compared with other Mojave desert tortoise populations. In the 1990s, Beaver Dam Slope experienced dramatic population declines due primarily to disease, and habitat degradation and alteration (Service 1994). The number of eggs that a female desert tortoise can produce in a season is dependent on a variety of factors including environment, habitat, availability of forage and drinking water, and physiological condition (Henen 1997; McLuckie and Fridell 2002).

### **Population Distribution and Monitoring**

Patterns of desert tortoise distribution are available from preliminary spatial analyses in Tracy et al. (2004). Their analyses revealed areas with higher probabilities of encountering both live and dead desert tortoises. In the western Mojave Desert, areas with concentrations of dead desert tortoises without corresponding concentrations of live desert tortoises were generally the same areas where declines have been observed in the past, namely the northern portion of the Fremont-Kramer CHU and the northwestern part of the Superior-Cronese CHU. Limited data revealed large areas where dead desert tortoises, but no live desert tortoises, were observed in the Piute-Eldorado Valley and northern Coyote Spring Valley, Nevada, and the western and southern portions of the Ivanpah Valley CHU in California. Most other recently sampled areas (mostly within critical habitat) reveal continued desert tortoise presence, although local population declines are known within some of these areas, such as the Beaver Dam Slope, Arizona.

Rangewide desert tortoise population monitoring began in 2001 and is conducted annually. The status and trends of desert tortoise populations are difficult to determine based only upon assessment of desert tortoise density due largely to their overall low abundance, subterranean sheltering behavior, and cryptic nature of the species. Thus, monitoring and recovery should include a comprehensive assessment of the status and trends of threats and habitats as well as population distribution and abundance. Studies during early research on desert tortoises focused on basic biology and demography and were largely centered in areas with high densities of desert tortoises. These high-density areas were used to establish permanent (long-term) study plots that have been studied at various intervals from 1979 through the present, while some low-density plots were discontinued (Berry and Burge 1984; K. Berry, U.S. Geological Survey, pers. comm. 2003, as reported in Tracy et al. 2004). However, historic estimates of desert tortoise density or abundance do not exist at the range-wide or regional level for use as a baseline. While a substantial body of data has been collected from long-term study plots and other survey efforts over the years, plot placement is generally regarded as a factor limiting demographic and trend conclusions only to those specific areas. Tracy et al. (2004) concluded that estimating accurate

long-term trends of desert tortoise populations, habitat, and/or threats across the range was not feasible based on the combined suite of existing data and analyses. Instead, these data provide general insight into the rangewide status of the species and show appreciable declines at the local level in many areas (Luke et al. 1991; Berry 2003; Tracy et al. 2004).

In an attempt to refine the long-term monitoring program for the desert tortoise, annual rangewide population monitoring using line distance transects began in 2001 (1999 in the Upper Virgin River Recovery Unit; McLuckie et al. 2006) and is the first comprehensive effort undertaken to date to estimate densities across the range of the species (Service 2006a). Rangewide sampling was initiated during a severe drought that intensified in 2002 and 2003, particularly in the western Mojave Desert in California. At the time the 1994 Recovery Plan was written, there was less consideration of the potentially important role of drought in the desert ecosystem, particularly regarding desert tortoises. In the meantime, studies have documented vulnerability of juvenile (Wilson et al. 2001) and adult desert tortoises (Peterson 1994, Peterson 1996, Henen 1997, Longshore et al. 2003) to drought.

The monitoring program is designed to detect long-term population trends, so density estimates from any brief time period (e.g., 2001 to 2005) would be expected to detect only catastrophic declines or remarkable population increases. Therefore, following the first 5 years of the long-term monitoring project, the goal was not to document trends within this time period, but to gather information on baseline densities and annual and regional (between recovery unit) variability (Service 2006a). Density estimates of adult desert tortoises varied among recovery units and years. Only if this variability is associated with consistent changes between years will monitoring less than 25 years describe important trends. For instance, considerable decreases in density were reported in 2003 in the Eastern Colorado and Western Mojave recovery units, with no correspondingly large rebound in subsequent estimates (Service 2006a). Until the underlying variability that may affect our interpretation of these first years of data can be identified, inferences as to the meaning of these data should not be made. Over the first 5 years of monitoring, desert tortoises were least abundant in the Northeast Mojave Recovery Unit (0.68 to 8.30 desert tortoises per kilometer<sup>2</sup> [0.26 to 3.20 desert tortoises per mile<sup>2</sup>] (Service 2009).

There are many natural causes of mortality, but their extents are difficult to evaluate and vary from location to location. Native predators known to prey on desert tortoise eggs, hatchlings, juveniles, and adults include: coyote, kit fox, badger (*Taxidea taxus*), skunks (*Spilogale putorius*), common ravens, golden eagles (*Aquila chrysaetos*), and Gila monsters (*Heloderma suspectum*). Additional natural sources of mortality to eggs, juvenile, and adults may include desiccation, starvation, being crushed (including in burrows), internal parasites, disease, and being turned over onto their backs during fights or courtship (Luckenbach 1982, Turner et al. 1987). Free-roaming dogs cause mortality, injury, and harassment of desert tortoises (Evans 2001). Population models indicate that for a stable population to maintain its stability, on average, no more than 25 percent of the juveniles and 2 percent of the adults can die each year

(Congdon et al. 1993, Service 1994). However, adult mortality at one site in the western Mojave Desert was 90 percent over a 13-year period (Berry 1997). Morafka et al. (1997) reported 32 percent mortality over five years among free-ranging and semi-captive hatchling and juvenile desert tortoises (up to five years old) in the western Mojave Desert. When the 26 that were known to have been preyed on by ravens were removed from the analysis, mortality dropped to 24 percent. Turner et al. (1987) reported an average annual mortality rate of 19 to 22 percent among juveniles over a nine-year period in the eastern Mojave Desert.

Declines in desert tortoise abundance appear to correspond with increased incidence of disease in some desert tortoise populations. The Goffs permanent study plot in Ivanpah Valley, California, suffered 92 to 96 percent decreases in desert tortoise density between 1994 and 2000 (Berry 2003). The high prevalence of disease in Goffs desert tortoises likely contributed to this decline (Christopher et al. 2003). Upper respiratory tract disease has not yet been detected at permanent study plots in the Colorado Desert of California, but is prevalent at study plots across the rest of the species' range (Berry 2003) and has been shown to be a contributing factor in population declines in the western Mojave Desert (Brown et al. 2002; Christopher et al. 2003). High mortality rates at permanent study plots in the northeastern and eastern Mojave Desert appear to be associated with incidence of shell diseases in desert tortoises (Jacobson et al. 1994). Low levels of shell diseases were detected in many populations when the plots were first established, but were found to increase during the 1980s and 1990s (Jacobson et al. 1994; Christopher et al. 2003). A herpesvirus has recently been discovered in desert tortoises, but little is known about its effects on desert tortoise populations at this time (Berry et al. 2002; Origgi et al. 2002).

The general trend for desert tortoises within the California Desert is one of decline. Tracy et al. (2004) concluded that the apparent downward trend in desert tortoise populations in the western portion of the range that was identified at the time of listing is valid and ongoing. Results from other portions of the range were inconclusive, but recent surveys of some populations found too few desert tortoises to produce population estimates (e.g., 2000 survey of the Beaver Dam Slope, Arizona), suggesting that declines may have occurred more broadly. Transects surveyed in the Western Mojave Recovery Unit that did not detect any sign over large areas of previously-occupied habitat, and the numerous carcasses found on permanent study plots provide evidence of a decline. During line distance sampling conducted in 8 DWMA's in California in 2003, 930 carcasses and 438 live desert tortoises were detected; more carcasses than live desert tortoises were detected in every study area (Woodman 2004). In 2004, workers conducting line distance sampling in California detected 1,796 carcasses and 534 live desert tortoises; more carcasses were detected than live desert tortoises in every study area (Woodman 2005). Below, we elaborate on patterns within each recovery unit.

#### *Northeastern Mojave Recovery Unit*

A kernel analysis was conducted in 2003-2004 for the desert tortoise (Tracy et al. 2004) as part of the reassessment of the 1994 Recovery Plan. The kernel analyses revealed several areas in which the kernel estimations for live desert tortoises and carcasses did not overlap. The pattern of non-overlapping kernels that is of greatest concern is those in which there were large areas

where the kernels encompassed carcasses but not live animals. These regions represent areas within DWMA's where there were likely recent die-offs or declines in desert tortoise populations. The kernel analysis indicated large areas in the Piute-Eldorado Valley where there were carcasses but no live desert tortoises. For this entire area in 2001, there were 103 miles of transects walked, and a total of 6 live and 15 dead desert tortoises found, resulting in a live encounter rate of 0.06 desert tortoises per mile of transect for this area. This encounter rate was among the lowest that year for any of the areas sampled in the range of the Mojave desert tortoise (Tracy et al. 2004).

Results of desert tortoise surveys at three survey plots in Arizona indicate that all three sites have experienced significant die-offs. Six live desert tortoises were located in a 2001 survey of the Beaver Dam Slope Exclosure Plot (Walker and Woodman 2002). Three had definitive signs of URTD, and two of those also had lesions indicative of cutaneous dyskeratosis. Previous surveys of this plot detected 31 live desert tortoises in 1996, 20 live desert tortoises in 1989, and 19 live desert tortoises in 1980. The 2001 survey report indicated that it is likely that there is no longer a reproductively viable population of desert tortoises on this study plot. Thirty-seven live desert tortoises were located in a 2002 survey of the Littlefield Plot (Young et al. 2002). None had definitive signs of URTD. Twenty-three desert tortoises had lesions indicative of cutaneous dyskeratosis. Previous surveys of this plot detected 80 live desert tortoises in 1998 and 46 live desert tortoises in 1993. The survey report indicated that the site might be in the middle of a die-off due to the high number of carcasses found since the site was last surveyed in 1998. Nine live desert tortoises were located during the mark phase of a 2003 survey of the Virgin Slope Plot (Goodlett and Woodman 2003). The surveyors determined that the confidence intervals of the population estimate would be excessively wide and not lead to an accurate population estimate, so the recapture phase was not conducted. One desert tortoise had definitive signs of URTD. Seven desert tortoises had lesions indicative of cutaneous dyskeratosis. Previous surveys of this plot detected 41 live desert tortoises in 1997 and 15 live desert tortoises in 1992. The survey report indicated that the site may be at the end of a die-off that began around 1996-1997.

#### *Eastern Mojave Recovery Unit*

The permanent study plot in the Ivanpah Valley is the only such plot in this DWMA; consequently, we cite information from that plot herein, although it is located within the Mojave National Preserve. Data on desert tortoises on a permanent study plot in this area were collected in 1980, 1986, 1990, and 1994; the densities of desert tortoises of all sizes per square mile were 386, 393, 249, and 164, respectively (Berry 1996).

The Shadow Valley DWMA lies north of the Mojave National Preserve and west of the Clark Mountains. It occupies approximately 101,355 acres. Data on desert tortoises on a permanent study plot in this area were collected in 1988 and 1992; the densities of desert tortoises of all sizes per square mile were 50 and 58, respectively (Berry 1996).

The Piute-Fenner DWMA lies to the east of the southeast portion of the Mojave National Preserve. It occupies approximately 173,850 acres. The permanent study plot at Goffs is the

only such plot in this DWMA; consequently, we cite information from that plot herein, although it is located within the Mojave National Preserve. Data on desert tortoises on the permanent study plot were collected in 1980, 1990, and 1994; Berry (1996) estimated the densities of desert tortoises of all sizes at approximately 440, 362, and 447 individuals per square mile, respectively. As Berry (1996) noted, these data seem to indicate that this area supported “one of the more stable, high density populations” of desert tortoises within the United States. Berry (1996) also noted that “a high proportion of the desert tortoises (had) shell lesions.” In 2000, only 30 live desert tortoises were found; Berry (2003) estimated the density of desert tortoises at approximately 88 desert tortoises per square mile. The shell and skeletal remains of approximately 393 desert tortoises were collected; most of these desert tortoises died between 1994 and 2000. Most of the desert tortoises exhibited signs of shell lesions; three salvaged desert tortoises showed abnormalities in the liver and other organs and signs of shell lesions. None of the three salvaged desert tortoises tested positive for upper respiratory tract disease.

Ivanpah and Piute-Eldorado valleys contained study plots that were analyzed in the Eastern Mojave Recovery Unit analysis. While there was no overall statistical trend in adult density over time, the 2000 survey at Goffs and the 2002 survey at Shadow Valley indicate low densities of adult desert tortoises relative to earlier years. Unfortunately, there are no data in the latter years for all five study plots within this recovery unit, and therefore, while there is no statistical trend in adult densities, we cannot conclude that desert tortoises have not experienced recent declines in this area. The probability of finding a carcass on a distance sampling transect was considerably higher for Ivanpah, Chemehuevi, Fenner, and Piute-Eldorado, which make up the Eastern Mojave Recovery Unit.

#### *Northern Colorado Recovery Unit*

Two permanent study plots are located within the Chemehuevi DWMA. At the Chemehuevi Valley and Wash plot, 257 and 235 desert tortoises were registered in 1988 and 1992, respectively (Berry 1999). During the 1999 spring survey, only 38 live desert tortoises were found. The shell and skeletal remains of at least 327 desert tortoises were collected; most, if not all, of these desert tortoises died between 1992 and 1999. The frequency of shell lesions and nutritional deficiencies appeared to be increasing and may be related to the mortalities.

The Upper Ward Valley permanent study plot was surveyed in 1980, 1987, 1991, and 1995; Berry (1996) estimated the densities of desert tortoises of all sizes at approximately 437, 199, 273, and 447 individuals per square mile, respectively.

#### *Eastern Colorado Recovery Unit*

Two permanent study plots are located within this DWMA. At the Chuckwalla Bench plot, Berry (1996) calculated approximate densities of 578, 396, 167, 160, and 182 desert tortoises per square mile in 1979, 1982, 1988, 1990, and 1992, respectively. At the Chuckwalla Valley plot, Berry (1996) calculated approximate densities of 163, 181, and 73 desert tortoises per square mile in 1980, 1987, and 1991, respectively. Tracy et al. (2004) concluded that these data show a statistically significant decline in the number of adult desert tortoises over time; they further

postulate that the decline on the Chuckwalla Bench plot seemed to be responsible for the overall significant decline within the recovery unit.

The kernel analysis of the Eastern Colorado Recovery Unit shows that the distributions of the living desert tortoises and carcasses overlap for most of the region. The Chuckwalla Bench study plot occurs outside the study area, which creates a problem in evaluating what may be occurring in that area of the recovery unit. However, the few transects walked in that portion of the DWMA yielded no observations of live or dead desert tortoises. This illustrates our concern for drawing conclusions from areas represented by too few study plots and leaves us with guarded concern for this region. The percentage of transects with live desert tortoises was relatively high for most DWMAs within the Eastern Colorado Recovery Unit. In addition, the ratio of carcasses to live desert tortoises was low within this recovery unit relative to others.

#### *Western Mojave Recovery Unit*

This recovery unit includes the Pinto Mountains, Ord-Rodman, Superior-Cronese, and Fremont-Kramer DWMAs. Based on areas sampled within the Western Mojave Recovery Unit (Service 2009), we estimate 43,701 desert tortoises (with a 95 percent confident interval of 24,361 to 79,126 tortoises) occur in this recovery unit.

The 117,016-acre Pinto Mountains DWMA is located in the southeastern portion of the Western Mojave Recovery Unit. No permanent study plots are located in this proposed DWMA. Little information exists on the densities of desert tortoises in this area. Tracy et al. (2004) noted that the distribution of carcasses and live desert tortoises appeared to be what one would expect in a “normal” population of desert tortoises; that is, carcasses occurred in the same areas as live desert tortoises and were not found in extensive areas in the absence of live desert tortoises.

The Ord-Rodman DWMA is located to the southeast of the city of Barstow and covers approximately 247,080 acres. The 1994 Recovery Plan notes that the estimated density of desert tortoises in this area is 5 to 150 desert tortoises per square mile (Service 1994). Three permanent study plots are located within and near this proposed DWMA.

The Superior-Cronese DWMA is located north of the Ord-Rodman DWMA; two interstate freeways and rural, urban, and agricultural development separate them. This DWMA covers 629,389 acres. No permanent study plots have been established in this area; the density of desert tortoises has been estimated through numerous triangular transects and line distance sampling efforts. This DWMA supports densities of approximately 20 to 250 desert tortoises per square mile (Service 1994).

The Fremont-Kramer DWMA is located west of the Superior-Cronese DWMA; the two DWMAs are contiguous and cover approximately 511,901 acres. The 1994 Recovery Plan notes that the estimated density of desert tortoises in this area was 5 to 100 desert tortoises per square mile (Service 1994). Berry (1996) notes that the overall trend in this proposed DWMA is “a steep, downward decline” and identifies predation by common ravens and domestic dogs, off-



road vehicle activity, illegal collecting, upper respiratory tract disease, and environmental contaminants as contributing factors.

During the summers of 1998 and 1999, the BLM funded surveys of over 1,200 transects over a large area of the western Mojave Desert. These transects failed to detect sign of desert tortoises in areas where they were previously considered to be common. Although these data have not been fully analyzed and compared with previously existing information, they strongly suggest that the number of desert tortoises has declined substantially over large areas of the western Mojave Desert. The Desert Tortoise Recovery Plan Assessment Committee also noted that the Western Mojave Recovery Unit has experienced declines in the number of desert tortoises (Tracy et al. 2004).

The Western Mojave Recovery Unit has experienced marked population declines as indicated in the 1994 Recovery Plan and continues today. Spatial analyses of this Recovery Unit show areas with increased probabilities of encountering dead rather than live animals, areas where kernel estimates for carcasses exist in the absence of live animals, and extensive regions where there are clusters of carcasses where there are no clusters of live animals. Collectively, these analyses point generally toward the same areas within the Western Mojave Recovery Unit, namely the northern portion of the Fremont-Kramer DWMA and the northwestern part of the Superior-Cronese DWMA. Together, these independent analyses, based on different combinations of data, all suggest the same conclusion for the Western Mojave. Data are not currently available with sufficient detail for most of the range of the desert tortoise with the exception of the Western Mojave Recovery Unit (Tracy et al. 2004).

#### *Upper Virgin River Recovery Unit*

The 1994 Recovery Plan states that desert tortoises occur in densities of up to 250 adult desert tortoises per square mile within small areas of this recovery unit; overall, the area supports a mosaic of areas supporting high and low densities of desert tortoises (Service 1994). The Utah Division of Wildlife Resources (UDWR) has intensively monitored desert tortoises, using a distance sampling technique, since 1998. Monitoring in 2003 indicated that the density of desert tortoises was approximately 44 per square mile throughout the reserve. This density represents a 41 percent decline since monitoring began in 1998 (McLuckie et al. 2006). The report notes that the majority of desert tortoises that died within one year (n=64) were found in areas with relatively high densities; the remains showed no evidence of predation.

In the summer of 2005, approximately 10,446 acres of desert tortoise habitat burned in the Red Cliffs Desert Reserve. The UDWR estimated that as many as 37.5 percent of adult desert tortoises may have died as a direct result of the fires (McLuckie et al. 2006).

#### *Summary*

Density estimates of adult tortoises varied among recovery units and years. Over the first six years of range-wide monitoring (2001-2005, 2007), tortoises were least abundant in the

Northeast Mojave Recovery Unit (1 to 3.7 tortoises per kilometer<sup>2</sup> [2 to 10 tortoises per mile<sup>2</sup>]; Service 2009), and the highest reported densities occurred in the Upper Virgin River Recovery Unit (15 to 27 tortoises per kilometer<sup>2</sup> [38 to 69 tortoises per mile<sup>2</sup>]; McLuckie et al. 2008). Considerable decreases in density were reported in 2003 in the Eastern Colorado and Western Mojave recovery units (Service 2006a). However, the variability between annual estimates among all years is consistent with variability due to sampling between years; only after several years of consistent patterns will the range-wide approach distinguish population trends from the variability due to sampling. Beyond noting that no range-wide population losses or gains were detected, inferences as to the meaning of these first years of data would be premature.

Please refer to *The Status of the Desert Tortoise (Gopherus agassizii) in the United States* (Berry 1984) and the *Desert Tortoise Recovery Plan Assessment* (Tracy et al. 2004) for a detailed description of the methods and population trend and distribution analyses described above. In addition, *Range-wide Monitoring of the Mojave Population of the Desert Tortoise: 2007 Annual Report* (Service 2009) provides information regarding the current monitoring effort.

Based on information in the draft recovery plan (Service 2008), desert tortoise (Mojave population) is classified as a) at a moderate degree of threat, which, although increased since 1994, does not place the species at imminent risk of extinction; b) has a low potential for recovery, adjusted based on current uncertainties about various threats and our ability to manage them; c) is a listed population below the species level; and d) is in potential conflict with development or other forms of economic activity. We anticipate that implementation of the revised recovery plan will resolve key uncertainties about threats and management, thereby improving recovery potential.

## Threats

The Service identified key threats when the Mojave population of the desert tortoise was emergency listed as endangered and subsequently listed as a threatened species, which remains valid today. The 1994 Recovery Plan discusses threats and developed recovery objectives to minimize their effects on the desert tortoise and allow the desert tortoise to recover. Since becoming listed under the Act, more information is available on threats to the desert tortoise with some threats such as wildfires and nonnative plants affecting large areas occupied by desert tortoises.

Nonnative plants continue to contribute towards overall degradation or habitat quality for the desert tortoise. Land managers and field scientists identified 116 species of nonnative plants in the Mojave and Colorado deserts (Brooks and Esque 2002). The proliferation of nonnative plant species has also contributed to an increase in fire frequency in desert tortoise habitat by providing sufficient fuel to carry fires, especially in the intershrub spaces that are mostly devoid of native vegetation (Service 1994; Brooks 1998; Brown and Minnich 1986). Changes in plant communities caused by nonnative plants and recurrent fire may negatively affect the desert



tortoise by altering habitat structure and species composition of their food plants (Brooks and Esque 2002).

Changing ecological conditions as a result of natural events or human-caused activities may stress individual desert tortoises and result in a more severe clinical expression of URTD (Brown et al. 2002). For example, the proliferation of non-native plants within the range of the desert tortoise has had far-reaching impacts on desert tortoise populations. Desert tortoises have been documented to prefer native vegetation over non-natives (Tracy et al. 2004). Nonnative, annual plants in desert tortoise critical habitat in the western Mojave Desert were identified to compose over 60 percent of the annual biomass (Brooks 1998). The reduction in quantity and quality of forage may stress desert tortoises and make them more susceptible to drought- and disease-related mortality (Brown et al. 1994). Malnutrition has been associated with several disease outbreaks in other chelonians (Borysenko and Lewis 1979).

Numerous wildfires occurred in desert tortoise habitat across the range of the desert tortoise in 2005 due to abundant fuel from the proliferation of nonnative plant species after a very wet winter. These wildfires heavily impacted two of the six desert tortoise recovery units, burning almost 19 percent of desert tortoise habitat in the Upper Virgin River and 10 percent in the Northeastern Mojave (Table 1). There were no significant fires from 2007 to 2009 in this area. In the Upper Virgin River Recovery Unit, 19 percent of the Upper Virgin River CHU burned. In the Northeastern Mojave Recovery Unit, three CHUs were impacted: approximately 23 percent of the Beaver Dam Slope CHU burned, 13 percent of the Gold Butte-Pakoon CHU, and 4 percent of the Mormon Mesa CHU. Although it is known that desert tortoises were burned and killed by the wildfires, desert tortoise mortality estimates are not available. Recovery of these burned areas is likely to require decades.

**Table 1. Area (hectares) of desert tortoise Critical Habitat burned in the Northeastern Mojave and Upper Virgin River recovery units unit during 2005\*.**

Recovery Unit	Critical Habitat Unit	Total Area Burned	Percent Burned
Northeastern Mojave	Beaver Dam Slope	53,528	26
	Gold-Butte Pakoon	65,339	13
	Mormon Mesa	12,952	3
	non-Critical Habitat	404,685	-
Upper Virgin River	Upper Virgin River	10,557	19

\*Complete data sources: NV fire data from the BLM as a single 2005 file:

[http://www.BLM.gov/nv/st/en/prog/more\\_programs/geographic\\_sciences/gis/geospatial\\_data.html](http://www.BLM.gov/nv/st/en/prog/more_programs/geographic_sciences/gis/geospatial_data.html); AZ fire data from Forest Service, part of historic files [cross referenced against the BLM ADSO fire data]:

<http://www.fs.fed.us/r3/gis/datasets.shtml>; UT fire data from the BLM, as part of historic fires file:

[http://www.BLM.gov/ut/st/en/prog/more/geographic\\_information/gis\\_data\\_and\\_maps.print.html](http://www.BLM.gov/ut/st/en/prog/more/geographic_information/gis_data_and_maps.print.html).

Disease and raven predation have been considered important threats to the desert tortoise since its emergency listing in 1989. What is currently known with certainty about disease in the desert tortoise relates entirely to individual desert tortoises and not populations; virtually nothing is known about the demographic consequences of disease (Tracy et al. 2004). Disease was identified in the 1994 Recovery Plan as an important threat to the desert tortoise. Disease is a natural phenomenon in wild populations of desert tortoises and can contribute to population declines by increasing mortality and reducing reproduction. However, URTD appears to be a complex, multi-factorial disease interacting with other stressors to affect desert tortoises (Brown et al. 2002; Tracy et al. 2004). The disease probably occurs mostly in relatively dense desert tortoise populations, as mycoplasmal infections are dependent upon higher densities of the host (Tracy et al. 2004).

From 1969 to 2004 the numbers of common ravens in the West Mojave Desert increased approximately 700 percent (Boarman and Kristan 2006). Population increases have also been noted at other locations particularly in the California Desert. This many-fold increase above historic levels and a shift from a migratory species to a resident species is due in large part to recent human subsidies of food, water, and nest sites (Knight et al. 1993, Boarman 1993, Boarman and Berry 1995). While not all ravens may include desert tortoises as significant components of their diets, these birds are highly opportunistic in their feeding patterns and concentrate on easily available seasonal food sources, such as juvenile desert tortoises.

Boarman (2002) identified the following major categories of threats: Agriculture, collection by humans, construction activities, disease, drought, energy and mineral development, fire, garbage and litter, handling and deliberate manipulation of desert tortoises, invasive or nonnative plants, landfills, livestock grazing, military operations, noise and vibration, OHV activities, predation, non-off-road vehicle recreation, roads, highways and railroads, utility corridors, vandalism, and wild horses and burros. For additional information on threats to the desert tortoise refer to Boarman (2002), Tracy et al. (2004), and Service (2008).

### **Desert Tortoise Critical Habitat – Rangewide Status**

Desert tortoise critical habitat was designated by the Service to identify the key biological and physical needs of the desert tortoise and key areas for recovery, and focuses conservation actions on those areas. Desert tortoise critical habitat is composed of specific geographic areas that contain the primary constituent elements of critical habitat, consisting of the biological and physical attributes essential to the species' conservation within those areas, such as space, food, water, nutrition, cover, shelter, reproductive sites, and special habitats. The specific primary constituent elements of desert tortoise critical habitat are:

- a. sufficient space to support viable populations within each of the six recovery units, and to provide for movement, dispersal, and gene flow;
- b. sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species;

- c. suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites;
- d. sufficient vegetation for shelter from temperature extremes and predators; and
- e. habitat protected from disturbance and human-caused mortality.

The CHUs were based on recommendations for DWMAs outlined in the *Draft Recovery Plan for the Desert Tortoise (Mojave Population)* (Service 1993). These DWMAs are also identified as desert tortoise ACECs by BLM. Because the critical habitat boundaries were drawn to optimize reserve design, the critical habitat unit may contain both “suitable” and “unsuitable” habitat. Suitable habitat can be generally defined as areas that provide the primary constituent elements.

Although recovery of the desert tortoise will focus on DWMAs/ACECs, section II.A.6. of the 1994 Recovery Plan and section 2(b) of the Act provide for protection and conservation of ecosystems on which federally-listed threatened and endangered species depend, which includes both recovery and non-recovery areas. The Mojave Desert ecosystem, of which the desert tortoise and its habitat are an integral part, consists of a dynamic complex of plant, animal, fungal, and microorganism communities and their associated nonliving environment interacting as an ecological unit (Noss and Cooperrider 1994). Actions that adversely affect components of the Mojave Desert ecosystem may directly or indirectly affect the desert tortoise. The 1994 Recovery Plan further states that desert tortoises and habitat outside recovery areas may be important in recovery of the tortoise. Healthy, isolated desert tortoise populations outside recovery areas may have a better chance of surviving catastrophic effects such as disease, than large, contiguous populations (Service 1994).

The 1994 Recovery Plan recommended DWMAs and subsequently the Service designated CHUs based on these proposed DWMAs (Service 1993). When designated, desert tortoise critical habitat contained all the primary constituent elements of desert tortoise critical habitat. The following seven principles of conservation biology serve as the standards by which the Service determines whether or not the CHUs are functioning properly:

- a. *Reserves should be well-distributed across the species' range.* The entire range of the Mojave desert tortoise occurs within one of the six recovery units identified in the 1994 Recovery Plan and at least one DWMA and CHU occurs within each recovery unit. The reserves remain well-distributed across the range of the desert tortoise.
- b. *Reserves should contain large blocks of habitat with large populations of target species.* The desert tortoise requires large, contiguous areas of habitat to meet its life requisites. Each DWMA and its associated CHUs that were designated to conserve contiguous blocks of habitat that exceed 500,000 acres, with the exception of the Upper Virgin River Recovery Unit (Table 2). The Upper Virgin River Recovery Unit does not meet the minimum size requirement identified in the 1994 Recovery Plan; however, the Service anticipates that reserve-level management will adequately conserve the desert tortoise

within this recovery unit. Designation of CHUs were based largely on transect data and included areas with the largest populations of desert tortoises.

- c. *Blocks of habitat should be close together.* This principle was met when CHUs were designated and remains valid.
- d. *Reserves should contain contiguous rather than fragmented habitat.* This principle was met when CHUs were designated and generally continue to be met. Desert tortoise-proof fencing has been constructed along major roads and highways that traverse critical habitat including Interstate 15 in Nevada and California (Ivanpah Valley DWMA/CHU), U.S. Highway 95 (US 95) in Nevada (Piute-Eldorado DWMA/CHU), and Highway 58 in California (Fremont-Kramer DWMA/CHU). Major roads and highways alone constitute a barrier to desert tortoise movements without fencing; however, the fencing minimized take of desert tortoises and culverts or underpasses allow for limited desert tortoise movement across the road or highway.
- e. *Habitat patches should contain minimal edge-to-area ratios.* This principle was met when CHUs were designated and generally continue to be valid. Notable exceptions include the northern Gold Butte-Pakoon CHU, and the southern termini of the Mormon Mesa, Ivanpah Valley, and Chuckwalla CHUs which have large edge-to-area ratios and further compromised by highways that traverse these relatively narrow areas within the CHUs.
- f. *Blocks should be interconnected by corridors or linkages connecting protected, preferred habitat for the target species.* Most CHUs are contiguous with another CHU with the exception of Ord-Rodman, Ivanpah Valley, Gold Butte Pakoon, and Upper Virgin River CHUs. Interstate 15 and the Virgin River separate the Gold Butte-Pakoon CHU from other CHUs in the Northeastern Mojave Recovery Unit. Similarly, Interstate 40 separates the Piute-Eldorado and Chemehuevi CHUs, and Ord Rodman and Superior-Cronese CHUs.
- g. *Blocks of habitat should be roadless or otherwise inaccessible to humans.* Achieving this principle is the most problematic. A 2001 inventory of roads in the western Mojave Desert suggests that road density increased from the mid-1980s. Further evaluation should be conducted as some of the recently mapped roads were actually historical roads especially with the advent of effective mapping capabilities (Tracy et al. 2004). Roads are abundant in desert tortoise habitat rangewide and may be increasing in density (Tracy et al. 2004).

The 1994 Recovery Plan contains conservation recommendations for desert tortoise critical habitat. The recommendations include the elimination of grazing by livestock, feral burros and horses on desert tortoise critical habitat. Since approval of the 1994 Recovery Plan, livestock grazing in desert tortoise critical habitat has been substantially reduced. BLM and the National

Park Service (NPS) manage for zero burros in Nevada in critical habitat and the California Desert Managers Group developed a burro management plan in 2004.

The status of the desert tortoise and its critical habitat has been impacted by decades of human activities. In their 1991 report, the GAO found that livestock grazing practices of the late 1880s and early 1990s badly damaged desert lands in the southwest. Domestic livestock grazing on BLM's hot desert allotments continue to pose the greatest risk of long-term environmental damage to a highly fragile resource. The GAO offered several options for consideration by Congress including the discontinuation of livestock grazing in hot desert areas. They concluded that BLM did not have the resources to properly manage the intensity of livestock grazing in hot deserts. Without sufficient monitoring data, BLM will not have the necessary data to change active preference levels and overgrazing may occur (GAO 1991).

Many of the threats to the desert tortoise exist across broad portions of the species' range. We have developed a prototype decision support system that uses the best data that could be obtained within the planning process and provides a guide as to what additional data are most needed. The initial datasets provide a structure and way to prioritize the next round of data gathering, particularly including impacts to critical habitat. These data, including future updates, will be made publicly available through the Recovery Implementation Team (RIT) process. Data are not readily available to quantify the number of acres of critical habitat that have been degraded; however, we are currently in the process of assembling various spatial data layers, such as aerial photography and satellite-derived land cover data, to complete these sorts of analyses as part of the RITs' prioritization and evaluation of recovery actions. To date, protection of these lands has not been sufficient to recover the species and lands outside critical habitat have become more important for recovery.

Table 2. Desert Tortoise CHUs, DWMAs, and Recovery Units—Size and Location

CHU	SIZE (ac.)	STATE	DWMA	RECOVERY UNIT
Chemehuevi	937,400	CA	Chemehuevi	Northern Colorado
Chuckwalla	1,020,600	CA	Chuckwalla	Eastern Colorado
Fremont-Kramer	518,000	CA	Fremont-Kramer	Western Mojave
Ivanpah Valley	632,400	CA	Ivanpah Valley	Eastern Mojave
Pinto Mtns.	171,700	CA	Joshua Tree	Western Mojave/ Eastern Colorado
Ord-Rodman	253,200	CA	Ord-Rodman	Western Mojave
Piute-Eldorado- CA	453,800	CA	Fenner Piute-Eldorado	Eastern Mojave Northeastern & Eastern Mojave
Piute-Eldorado- NV	516,800	NV		
Superior-Cronese	766,900	CA	Superior-Cronese Lakes	Western Mojave
Beaver Dam:	87,400	NV	Beaver Dam	Northeastern Mojave (all)
	74,500	UT	Beaver Dam	
	42,700	AZ	Beaver Dam	
Gold Butte-Pakoon	192,300	NV	Gold Butte-Pakoon	Northeastern Mojave (all)
	296,000	AZ	Gold Butte-Pakoon	

Mormon Mesa	427,900	NV	Mormon Mesa Coyote Spring	Northeastern Mojave
River	54,600	UT	Upper Virgin River	Upper Virgin River

Further information on desert tortoise critical habitat can be found in the following documents:

- Desert Tortoise Recovery Plan Assessment Report (Tracy et al. 2004)—all CHUs
- Final Environmental Impact Report and Statement for the West Mojave Plan (BLM 2005)—Fremont-Kramer CHU, Superior-Cronese CHU, Ord-Rodman CHU, and Pinto Mountains CHU
- Mojave National Preserve General Management Plan (NPS 2002)—Ivanpah Valley CHU and Piute-Eldorado CHU
- Northern and Eastern Colorado Coordinated Management Plan (BLM 2002a)—Chemehuevi CHU, Pinto Mountains CHU, and Chuckwalla CHU
- Northern and Eastern Mojave Desert Management Plan (BLM 2002b)—Ivanpah Valley CHU, Piute-Eldorado CHU, and Chemehuevi CHU
- Clark County Multiple Species HCP (RECON 2000)—Beaver Dam Slope CHU, Mormon Mesa CHU, Gold Butte-Pakoon CHU, and Piute-Eldorado CHU
- Washington County HCP (Washington County Commission 1995)—Upper Virgin River CHU
- Desert Tortoise (Mojave Population ) Recovery Plan and Proposed Desert Wildlife Management Areas for Recovery of the Mojave Population of the Desert Tortoise (companion document to the Desert Tortoise Recovery Plan) (Service 1994)—all CHUs

## ENVIRONMENTAL BASELINE

### Action Area

The implementing regulations for section 7(a)(2) of the Act define the “action area” as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). For the purposes of this biological opinion, we consider the action area to include the 75-foot-wide footprint and right-of-way of the rail alignment, the Victorville passenger station, Baker MOW, Victorville OMSF, utility corridor right-of-way, TCAs, the 162.5-foot temporary construction area along the permanent rail alignment (when appropriate), and the 300-foot-wide buffer around all project facilities and work areas to account for effects associated with construction noise, dust, and the potential relocation of desert tortoises. For most of the project areas for the rail alignment, this 300-foot-wide area extends only on one side of Interstate 15 because desert tortoises would not be moved to the opposite side of the freeway from where they are found, and construction noise and dust would be masked by the freeway. Within Segment 4c, and where the alignment would deviate far enough from the freeway, the 300-foot-wide area extends to both sides of the project right-of-way.

## **Habitat Characteristics of the Action Area**

The biological assessment (ICF International 2010) provides a more detailed description of the action area. In general, creosote bush and saltbush shrub complexes characterize a majority of the action area within desert tortoise habitat; desert holly shrub, Joshua tree woodland, blackbrush shrub, and mesquite shrub are also present. Dry lake beds are also present in the action area. The action area also crosses several urbanized and rural areas.

Where the right-of-way is adjacent to the freeway, habitat is generally disturbed by activities associated with the freeway. The amount of disturbance generally decreases as the distance from the freeway increases. The proposed right-of-way is least disturbed where it is most distant from Interstate 15 in the Ivanpah Valley.

## **Environmental Baseline for Each Segment of the Proposed Right-of-way**

In the following paragraphs, we have provided information on the likely status of desert tortoises, status of critical habitat, land status, and previous consultations in the action area in a segment-by-segment manner. Unless otherwise cited, the following discussion is based on the aerial photographs of the right-of-way in the biological assessment (ICF International 2010) and general knowledge of Service staff.

### *Segment 1*

The proposed right-of-way and most of its ancillary facilities are located on the north side of Interstate 15 from its western terminus until just west of Halloran Summit in Segment 3.

Abundance of Desert Tortoises. Generally, we expect that desert tortoises would be more abundant in the eastern portion of this segment, as the distance from the urbanized area of Victorville increases. We expect that relatively few desert tortoises occur within this segment because of its proximity to the freeway, the amount of unauthorized off-road vehicle use that occurs, and the presence of sheep grazing.

We expect that few desert tortoises occur along the route of the proposed utility corridor that would extend from west of the Mojave River to the Victorville OMSF.

Critical Habitat. This segment does not contain any critical habitat.

Previous Consultations in the Action Area. In a biological opinion issued to the Federal Highway Administration on March 29, 2001, we determined that the widening of the southbound side of Interstate 15 from Barstow to Victorville was not likely to jeopardize the continued existence of the desert tortoise (1-8-00-F-37, Service 2001a). We estimated that few desert tortoises were likely to be killed or injured in the 263 acres that would be temporarily disturbed or permanently lost as a result of this project. To the best of our knowledge, no desert tortoises



were killed or injured during construction.

On November 7, 2001, we issued a biological opinion to the Federal Highway Administration for the widening of the northbound side of Interstate 15 from Victorville to Barstow (1-8-01-F-58, Service 2001b). We concluded that the few desert tortoises likely to be killed or injured and the disturbance or permanent loss of 355 acres of habitat was not likely to jeopardize the continued existence of the desert tortoise. To the best of our knowledge, no desert tortoises were killed or injured during construction.

On June 30, 2003, the Service issued a biological opinion to the BLM regarding the effects of the designation of routes of travel in the western Mojave Desert on the desert tortoise and its critical habitat (1-8-03-F-21, Service 2003). As a result of the proposed action, the BLM designated routes of travel on public lands as open, closed, or limited to vehicular use. The proposed action resulted in a reduction in the mileage of open routes on public lands; additionally, any route that was not designated as open was considered to be an unauthorized route. The Service concluded that the BLM's designation of routes of travel was not likely to jeopardize the continued existence of the desert tortoise or adversely modify its critical habitat. Although the Service did not estimate the number of desert tortoises that could be killed or injured by the project because of the large size of the action area and the patchy distribution of desert tortoises, it required the BLM to contact the Service to determine if re-initiation was necessary if more than 5 desert tortoises were found dead or injured in a 12-month period.

On January 9, 2006, the Service issued a biological opinion to the BLM regarding the effects of a proposed amendment to the California Desert Conservation Area Plan for the western Mojave Desert on the desert tortoise and its critical habitat (1-8-03-F-58, Service 2006b). The BLM's proposed action was a substantial revision of the California Desert Conservation Area Plan, with the fundamental goal of adopting numerous management prescriptions that were intended to promote the recovery of the desert tortoise. These prescriptions addressed grazing, land use classification, recreation, and numerous other elements of the BLM's management of the western Mojave Desert, including a minor revision of the route network considered in the consultation discussed in the previous paragraph. Of particular note to this segment, the BLM reaffirmed its previous decision, made under the Western Mojave Land Tenure Adjustment Project, to make most of the public land between Victorville and Barstow available for disposal. The Service concluded that the BLM's amendment of the California Desert Conservation Area Plan for the western Mojave Desert was not likely to jeopardize the continued existence of the desert tortoise or adversely modify its critical habitat because the vast majority of changes addressed in the amendment reduced the intensity of use and were protective of the desert tortoise.

As a result of projects that they have undertaken in this area, the Federal Highway Administration and California Department of Transportation have installed fencing to prevent desert tortoises from entering Interstate 15 from Barstow to approximately half way to Victorville.



*Segment 2C*

Abundance of Desert Tortoises. We expect that relatively few desert tortoises occur within the right-of-way between Lenwood and Barstow because of the development associated with these two areas. Desert tortoises are absent from the proposed right-of-way where it traverses the developed areas of Lenwood and Barstow.

East of Barstow, the proposed right-of-way crosses the Mojave River. From the eastern side of the Mojave River to the western edge of Calico Dry Lake, the right-of-way likely supports a small number of tortoises; this number may increase as the right-of-way approaches the dry lake because the distance between the right-of-way and the freeway increases in this area. Desert tortoises do not occur on the dry lake. East of Calico Dry Lake to the end of the segment, the number of desert tortoises within the right-of-way likely decreases as it moves closer to the freeway in this area.

Critical Habitat. This segment enters the Superior-Cronese Critical Habitat Unit east of Barstow, for approximately 5.5 miles (3 miles west of Calico Dry Lake and 2 miles at the eastern end of the segment). The primary constituent elements of critical habitat are likely degraded to some degree where the right-of-way is adjacent to Interstate 15. Fort Irwin Road (located to the west of Calico Dry Lake) probably fragments this portion of the critical habitat unit to some degree. East of the dry lake, the primary constituent elements of critical habitat may be disrupted to some degree, in the west, by the scattered residences and, in the east, by proximity of the right-of-way to Interstate 15.

Previous Consultations in the Action Area. The biological opinions regarding route designation and the amendment of the California Desert Conservation Area Plan for the western Mojave Desert also apply to this segment. The BLM manages a relatively small amount of land in this segment; lands within the Superior-Cronese Critical Habitat Unit and Desert Wildlife Management Area are to be retained, under the provisions of the amendment to the California Desert Conservation Area Plan.

On May 3, 2002, the Service determined that the proposed widening of Fort Irwin Road from Interstate 15 to Fort Irwin was not likely to jeopardize the continued existence of the desert tortoise or adversely modify its critical habitat. As part of the proposed action, the County of San Bernardino installed fencing to prevent desert tortoises from entering the road. The proposed DesertXpress right-of-way crosses Fort Irwin Road and the fence near Interstate 15.

*Segment 3B*

Abundance of Desert Tortoises. Generally, we expect that desert tortoises would be relatively more abundant in this segment than in the more westerly segments because this area is more isolated from development. Desert tortoises are likely to be most abundant in two portions of this segment. First, the area from just west of Minneola Road to the western edge of the Cronese

Basin generally supports appropriate habitat, with the exceptions of a few small developed areas, primarily near freeway exits. Second, from the western edge of the Cronese Basin to slightly east of the community Baker, we expect relatively few desert tortoises to be present because of the development around Baker and, outside of the developed area, the abundance of sandy habitat that is at lower elevations than desert tortoises usually occur.

TCA 6 is located south of Interstate 15, to the east of Yermo. We are unfamiliar with this area in relation to desert tortoises. Based on our experience with this general location, it may be too sandy to support desert tortoises.

Desert tortoises are likely absent along the route of the proposed utility corridor near the community of Baker because of the low elevation in this area. As the distance from Baker increases to the east and the elevation increases, sandy substrates transition to ones more suitable for desert tortoises. We expect that this area would support a relatively higher number of desert tortoises, except in areas adjacent to freeway off ramps, where service stations or other disturbed areas occur and as the elevation increases at Halloran Summit and near Mountain Pass. Segment 3 ends south of the Clark Mountains, in Mountain Pass. Generally, we expect desert tortoises to be absent from the area around Mountain Pass because of the higher elevation, disturbance associated with the MolyCorp Mine, and the proximity of the right-of-way to the freeway. We note, however, that a few desert tortoises have been found near the western perimeter of the mine, at elevations over 4,000 feet.

The proposed right-of-way crosses to the south side of Interstate 15 near the western edge of Shadow Valley. It returns to the northern side of the freeway at the Halloran Summit Road.

Critical Habitat. This segment passes through the Superior-Cronese Critical Habitat Unit, from its end to the western edge of the Cronese Basin for approximately 30 miles. This entire reach is adjacent to the freeway; consequently, the primary constituent elements of critical habitat are degraded to some degree in the area adjacent to Interstate 15.

East of Baker and west of Mountain Pass, this segment passes through the Ivanpah Critical Habitat Unit for approximately 25 miles. Again, the proposed alignment is adjacent to Interstate 15, which likely contributes to some degree of degradation of the primary constituent elements of critical habitat.

Previous Consultations in the Action Area. In 2001, the Service issued a biological opinion to the Federal Highway Administration for the construction of a southbound truck-descending lane and widening of Interstate 15 between Baker and Mountain Pass (1-8-02-F-3, Service 2001c). In this biological opinion, the Service concluded that the proposed action was not likely to jeopardize the continued existence of the desert tortoise or adversely modify its critical habitat and that few, if any, desert tortoises would be killed or injured by the proposed action. As a result of this consultation, the California Department of Transportation installed fencing to prevent desert tortoises from entering the freeway from just east of Baker to Mountain Pass.

The previously described biological opinions regarding route designation and the amendment of the California Desert Conservation Area Plan apply to the western portion of this segment. The BLM's western Mojave Desert planning area, to which these documents apply, ends a few miles west of Baker. Public lands in this segment are to be retained, under the provisions of amendments to the California Desert Conservation Area Plan.

The BLM's northern and eastern Mojave Desert planning area begins where the western planning area ends and extends to the Nevada border. The Service issued a biological opinion regarding the effects of route designation for areas outside of critical habitat for this planning area on June 7, 2004 (1-8-04-F-11, Service 2004). We concluded that the BLM's proposed action, which was similar to that described for the western Mojave Desert planning area, was not likely to jeopardize the continued existence of the desert tortoise. Although the Service did not estimate the number of desert tortoises that could be killed or injured by the project because of the large size of the action area and the patchy distribution of desert tortoises, it required the BLM to contact the Service to determine if re-initiation was necessary if more than 5 desert tortoises were found dead or injured in a 12-month period. To date, we are aware of one desert tortoise that was likely killed as a result of casual use of an open route in this area. In late 2010, a desert tortoise was found dead in the road near a construction area in Ivanpah Valley; given the circumstances surrounding the carcass, the BLM determined that the desert tortoise was likely killed by someone using the road under its causal use provisions.

On March 31, 2005, the Service concluded that the BLM's proposed amendment to the California Desert Conservation Area Plan for the northern and eastern Mojave Desert planning area was not likely to jeopardize the continued existence of the desert tortoise or adversely modify its critical habitat (1-8-04-F-43R, Service 2005). This consultation addressed essentially the same issues we discussed previously for the California Desert Conservation Area Plan amendment for the western Mojave Desert; route designation in this consultation addressed only those routes within critical habitat.

The Army installed fencing along the southbound side of Interstate 15 from near the Minneola Road exit in the west to near the Afton Canyon Road exit in the east to prevent desert tortoises from entering Interstate 15. The Army undertook this action as part of its overall plan to add maneuver lands at Fort Irwin; this action was discussed in a biological opinion that the Service issued to the Army on December 29, 2006 ((1-8-05-F-43, Service 2006c).

#### *Segment 4C*

Abundance of Desert Tortoises. We expect that desert tortoises would be absent or extremely rare in the area around Mountain Pass, because of the higher elevation and the disturbance associated with the rare earth mine on the eastern side of the pass. As the segment crosses the alluvial fan in Ivanpah Valley, we expect that desert tortoises would be relatively abundant because of the higher quality habitat and distance from the freeway. As the segment moves closer to Ivanpah Dry Lake and the community of Primm, we expect the number of desert

tortoises to decrease because the substrate becomes more silty and human disturbance increases. Although the quality of habitat improves north of Primm, the proximity of the segment in this area to Interstate 15 likely causes the number of desert tortoises to remain low.

Critical Habitat. This segment does not contain any critical habitat.

Previous Consultations in the Action Area. The biological opinions regarding route designation and the amendment of the California Desert Conservation Area Plan for the eastern Mojave Desert also apply to this segment.

On October 1, 2010, the Service issued a biological opinion to the BLM for the construction, operation, and maintenance of a solar power plant in the northern portion of Ivanpah Valley (8-8-10-F-24, Service 2010a). As a result of this biological opinion, which concluded that the proposed action was not likely to jeopardize the continued existence of the desert tortoise, the project proponent was required to translocate numerous desert tortoises from the project site into surrounding areas. In March, 2011, the BLM re-initiated formal consultation on the proposed action because, in part, it believed that the number of desert tortoises likely to be found during the second and third phases of construction of the solar power plant is likely to exceed that which we predicted in our biological opinion. If DesertXpress proceeds with construction in this area, the proposed right-of-way is likely to cross areas into which desert tortoises from the solar power plant have been translocated.

### *Segment 5B*

Abundance of Desert Tortoises. North of the Sloan Interchange on Interstate 15, we expect desert tortoises would be relatively uncommon because of degraded habitat conditions immediately adjacent to the freeway.

Critical Habitat. This segment does not contain any critical habitat.

Previous Consultations in the Action Area. On November 22, 2000, the Service issued an incidental take permit (TE-034927) to Clark County, Nevada; this incidental take permit also included cities within the county and the Nevada Department of Transportation. The incidental take permit allows incidental take of desert tortoise for a period of 30 years on 145,000 acres of non-federal land in Clark County and within the Nevada Department of Transportation's rights-of-way, south of the 38th parallel in Nevada. The multispecies habitat conservation plan and environmental impact statement (RECON 2000) serves as the permittees' habitat conservation plan and details their proposed measures to minimize, mitigate, and monitor the effects of covered activities. The action area is included within the covered area for the habitat conservation plan and includes the Nevada Department of Transportation's actions without a Federal nexus within the Interstate 15 right-of-way.

*Segment 6B*

Abundance of Desert Tortoises. Approximately 7 miles of the northern end of this segment occurs in the urbanized Las Vegas area; desert tortoise habitat adjacent in this area is highly degraded or absent. We anticipate that very few desert tortoises occur in this section.

Critical Habitat. This segment does not contain any critical habitat.

Previous Consultations in the Action Area. The incidental take permit discussed in the previous section also applies to this area.

*Summary*

Abundance of Desert Tortoises. We expect few desert tortoises to be present in the right-of-way where the alignment is adjacent to Interstate 15. Where the alignment is adjacent to the freeway, we expect the portions of the proposed rail line that are within or adjacent to developed areas to support fewer desert tortoises than areas that are more distant. We expect desert tortoises to be absent from dry lake beds and areas with low (e.g., Baker) or high (e.g., Mountain Pass) elevations.

The alignment leaves the freeway at Calico Dry Lake and through Ivanpah Valley. We expect desert tortoises to be more abundant in these areas because they are farther from Interstate 15. Because of the greater length of the Ivanpah Valley segment and generally higher quality habitat (i.e., the presence of a dry lake in the Calico segment), we expect this segment supports more desert tortoises.

Critical Habitat. Segment 2c crosses two portions of the Superior-Cronese Critical Habitat Unit for a total of approximately 5.5 miles. Segment 3B continues through the same portion of the Superior-Cronese Critical Habitat Unit as Segment 2c for approximately 30 miles. Segment 3B crosses the Ivanpah Critical Habitat Unit for approximately 25 miles. For most of these distances, the proposed right-of-way is adjacent to Interstate 15.

Previous Consultations in the Action Area. In California, the action area for the proposed right-of-way crosses the action areas of numerous previous consultations; in Nevada, the action area for the incidental take permit for Clark County overlaps the entire action area of the proposed action. Although actions upon which we previously consulted (including the incidental take permit) affected the current action area in many ways, we expect that, where Interstate 15 is adjacent to the proposed DesertXpress right-of-way, the primary factor influencing desert tortoises and their critical habitat in the action area is the freeway. We expect that, at least where desert tortoise fencing has not been installed, the density of desert tortoises is reduced in these areas; where it has been installed, densities are unlikely to have recovered to the extent that they are the same as the overall densities of desert tortoises in the regions. We also expect that the quality of critical habitat in the portions of the proposed alignment that are adjacent to the

freeway have been degraded to some degree by the use of freeway.

### **Estimated Number of Desert Tortoises in the Action Area**

The Service uses line-distance sampling to estimate the density of desert tortoises greater than 180 millimeters in length in monitored areas within recovery units. We averaged the densities from sampling years 2007 through 2010 in the Western, Eastern, and Northeastern Recovery Units (Service 2009, 2010b, 2010c). We do not have extensive data on the density of desert tortoises in the areas of the recovery units that lie outside desert wildlife management areas and critical habitat. In areas outside of desert wildlife management areas and critical habitat, data were generally collected using methods other than line-distance sampling and are not comparable to the numbers obtained through line-distance sampling. Consequently, for the purposes of this biological opinion, we are basing the number of desert tortoises likely to occur in the action area solely on data collected within desert wildlife management areas and critical habitat. This number is likely an overestimate of the actual number of animals in the action area.

We used the densities derived from line distance sampling for the Western Mojave, Eastern Mojave, and Northeastern Recovery Units as the primary source of information to arrive at our estimate. The assumptions we used to derive our estimate are:

1. Although these densities were derived from areas that generally supported the highest densities of desert tortoises (i.e., desert wildlife management areas, critical habitat), we have used the same densities for areas outside of these managed areas.
2. We have not attempted to adjust the number of desert tortoises to account for the depressed densities that generally occur adjacent to freeways or for animals that may remain in habitat undisturbed by the proposed action between the rail line and the freeway.
3. We have not developed a separate estimate for desert tortoises smaller than 180 millimeters; instead, we will use the number of animals based on the average densities of desert tortoises larger than 180 millimeters to estimate the total number of desert tortoises.

The following table shows the average densities of desert tortoises in the three recovery units and the total number of individuals we estimate to be present within the action area.

<b>Rail Line Segments by Recovery Unit</b>	<b>Average Density (tortoises per square mile)</b>	<b>Acreage Lost (square miles)</b>	<b>Number of Desert Tortoises</b>
<b>Western Mojave</b>	10.1	4.05	41
<b>Eastern Mojave</b>	13.5	1.98	27
<b>Northeastern Mojave</b>	6.0	2.79	17

Estimating the number of desert tortoises in any large action area is difficult; when the action

area extends across numerous habitat types, several regions of the desert, and both disturbed and undisturbed areas, any estimate has a substantial probability of inaccuracy. Given the best available information regarding the density of desert tortoises in the region and adjacent to freeways, we expect that the number of desert tortoises depicted in the table is very likely an overestimate of the numbers of animals in the action area. However, we believe that this estimate provides a reasonable data point from which to analyze the effects of the proposed action on the desert tortoise.

We have not attempted to quantify the number of nests and eggs that may be present in the action area. The decreased density of desert tortoises adjacent to the freeway would likely result in a decreased number of nests; given the various assumptions needed to derive the number of nests in any given area and the greater number of assumptions we used to derive the estimated number of desert tortoises for this action area, we predict little value in carrying through with these assumptions to estimate the number of nests and eggs.

## EFFECTS OF THE ACTION

We will conduct our analysis in a step-wise manner. First, we will consider the general effects of the construction, operation, and maintenance of a rail line and its ancillary facilities on the desert tortoise and its critical habitat. In the second step, we will consider how these general impacts are likely to affect the specific segments of the proposed action.

Additionally, because the proposed action is a design-build project, the FRA cannot, at this time, provide specific information on some aspects of the rail line. For example, although the right-of-way would generally be located immediately adjacent to Interstate 15 for most of its alignment, we do not know where it would be in relation to existing facilities, including any desert tortoise fencing that is currently in place along Interstate 15. Consequently, some areas that are identified as being temporarily disturbed in the biological assessment may be located between the freeway and the rail line and, thus, would be unusable by desert tortoises even if the plant community is restored. In other cases, small patches of undisturbed habitat would remain between the freeway and the rail line; depending on whether these areas are connected to the opposite side of the rail line by bridges or culverts of a sufficient size, these areas may also be unavailable to desert tortoises. To address these issues, for the purpose of the analysis in this biological opinion, we will assume all temporary disturbance identified in the biological assessment is permanent. Upon completion of the detailed design of the rail line, the FRA will re-assess the amount of temporary and permanent disturbance and undisturbed but isolated fragments of habitat. If the amount of disturbance and isolated habitat exceeds the amount we analyzed in this biological opinion to a degree that the overall effects upon the desert tortoise and its critical habitat trigger the re-initiation criteria defined at 50 CFR 402.16, the FRA will re-initiate formal consultation. If the FRA's re-assessment reveals new effects that can be adequately addressed through additional protective measures (e.g., additional culverts to reduce fragmentation, etc.), any additional consultation required may be addressed through the Service's written concurrence. The FRA and Service discussed and agreed upon this approach in a

telephone conversation and exchange of electronic mail on April 1, 2011 (Steinwert 2011).

## **Effects to Desert Tortoises**

### *Capture and Relocation of Desert Tortoises*

DesertXpress will capture and relocate all desert tortoises from the fenced (temporary and permanent) project areas and any other portion of the action area when the animal is in harm's way due to project-related activities. DesertXpress will move all project site desert tortoises approximately 300 feet from the limit of disturbance (i.e., beyond the 162-foot-wide temporary construction area) to reduce the potential for animals walking the fence (in an attempt to return to the capture site) or being indirectly affected by construction activities within the project area. Animals moved in this manner may attempt to return to the portions of their territory on the far side of the fence. In past studies, at least a small percentage of translocated desert tortoises that had been radio-tagged tried to return to their capture sites (Nussear 2004). We expect that these animals would eventually become acclimated to the new boundaries of their territories and cease attempts to return.

Releasing a desert tortoise outside of its home range, far from known burrows, or away from shade may be detrimental to its health (Stewart 1993 in Boarman 2002); such a release could be particularly hazardous during hot, dry weather or late in the afternoon when the body temperatures of stressed desert tortoises could reach fatal levels. However, we expect that most desert tortoises along the proposed alignment are likely to be moved short distances and, therefore, are likely to be familiar with the release areas.

The movement of desert tortoises into areas adjacent to the project area could potentially affect the home ranges of desert tortoises already outside of the project area, but within the release area. This movement could slightly increase the density within the release area. However, we do not expect that relocated animals would be so concentrated that it would substantially alter the density of desert tortoises in the relocation area. Given that Saethre et al. 2003 (in Esque et al. 2005) did not observe possible effects until densities reached 1,295 desert tortoises per square mile and the densities within the project area are already far below this number, we expect that the translocation is unlikely to affect resident animals in a substantial manner as a result of increased densities. In addition, we anticipate all desert tortoises moved from the proposed alignment are likely to be moved a short distance and, therefore, are likely to be familiar with the adjacent area and the desert tortoises that reside in the area.

A potential exists that desert tortoises would be relocated into isolated sections of habitat, such as when an existing rail line is parallel to but not immediately adjacent to the new alignment. Small sections of habitat would also be isolated when the rail alignment deviates slightly from the freeway. Because DesertXpress will ensure movement of desert tortoises can persist by installing culverts underneath the rail alignment, these animals will likely be able to access adjacent habitat.



An elevated level of transmission of disease is also unlikely to occur because the relocated animals would likely have previous contact with other individuals in the area. For this reason, these short-distance relocations are unlikely to affect desert tortoises in the action area in a substantial manner.

Handling desert tortoises sometimes causes them to void the contents of their bladder, which may represent loss of important fluids and this loss could be fatal (Averill-Murray 1999 in Boarman 2002). Averill-Murray 1999 (in Boarman 2002) provided some evidence that handling-induced voiding may adversely affect survivability, although the amount of fluid discharged is usually small. In addition, disease transmission could occur if people handle more than one desert tortoise without sterilizing their hands or using different clean or sterilized gloves for each handling (Roskopf 1991, and Berry and Christopher 2001 in Boarman 2002). Because DesertXpress will hire Service-approved biologists (i.e., individuals that are aware of the most current protocols and guidelines and that demonstrate substantial field experience and training to safely and successfully conduct their required duties) to relocate the animals, these occurrences are unlikely.

Because disturbance areas on this project are small or linear in shape, movement of desert tortoises immediately outside of the work area is not likely to remove them from their current home ranges. Consequently, any desert tortoise moved will likely continue to occupy familiar territory and use known shelter sites and is unlikely to suffer post-translocation mortality associated with displacement from the work area.

Subadult and adult desert tortoises are generally large enough to be observed during clearance surveys. Juvenile desert tortoises are less likely to be found during surveys and as a result are more likely to be injured or killed during project activities.

#### *Construction of Facilities and Rail Alignment*

DesertXpress will permanently fence with desert tortoise exclusion fencing the Victorville Passenger Station, the Victorville OMSF, and the 75-foot permanent right-of-way. They will temporarily fence with desert tortoise exclusion fencing all construction site areas that are beyond the perimeter of the right-of-way, including the TCAs. After the fences are installed, DesertXpress will remove all desert tortoises from the sites prior to ground disturbance. During construction of the perimeter fencing and during other ground-disturbing activities that are outside of the fenced facilities (i.e., utility line corridor), DesertXpress will perform pre-activity clearance surveys and employ monitors to move desert tortoises out of harm's way if they re-enter work areas. All personnel on site will be given environmental awareness training, will inspect for animals underneath vehicles and other equipment before moving, and will not exceed 15 miles per hour when driving within the action area. For these reasons, we anticipate that construction, including construction access, is unlikely to kill larger desert tortoises. Some potential always exists that surveyors may miss an individual during clearance surveys and

construction monitoring. We cannot predict how many adult desert tortoises that clearance surveys and construction monitoring would miss. However, because DesertXpress will use qualified biologists, authorized by the Service for clearance surveys, we anticipate that the number is likely to be small.

Juvenile desert tortoises and eggs are difficult to detect during surveys and construction monitoring; therefore, the potential exists that surveyors may miss them and they may remain in the work areas during construction activities. We cannot predict how many juvenile desert tortoises or eggs surveyors may miss because we cannot predict how many would be in the action area at the time of project implementation; eggs are particularly vulnerable because they are buried. Ground-disturbing activities, such as grading and trenching, may crush desert tortoises and eggs missed during pre-clearance surveys or bury eggs so deep that they may not hatch. Because DesertXpress will use qualified biologists, authorized by the Service, for clearance surveys, we anticipate that the few, if any, individuals will remain after the clearance surveys. As a caveat to this discussion, desert tortoise eggs are not present throughout the entire year; consequently, if construction occurs after eggs have hatched and before desert tortoises have laid the next year's clutches, eggs would not be destroyed by the project's activities.

Construction of the rail line would, in some places, separate areas of habitat that would otherwise not be directly affected by the proposed project from larger blocks of habitat. In such cases, any desert tortoises that may reside in these areas would be isolated and effectively lost from the population. Because the proposed action is a design-build project, we cannot fully assess, at this time, whether culverts intended to maintain the integrity of washes would be sufficient to maintain connectivity between desert tortoises across the rail alignment. The number, type, and location of culverts installed across the alignment as it deviates from the freeway would determine, to a large degree, whether adequate connectivity would persist; the presence of the alignment may still hinder their ability to disperse if the culverts are not sited and constructed appropriately in relation to the existing territories of resident desert tortoises. In some cases, depending on various factors, such as the condition and amount of habitat and number of desert tortoises that would be isolated, an attempt to maintain connectivity may be inappropriate or infeasible. For example, if the area that would be isolated by the alignment is small and contained degraded habitat and no or few desert tortoises, the benefits of designing, building, and maintaining adequate culverts to promote connectivity may not be reasonable.

#### *Operation and Maintenance Activities*

The biological assessment lists numerous measures that will be implemented during construction. The biological assessment, however, does not include details of what operation and maintenance activities will occur or what minimization measures will be implemented to reduce impacts to the desert tortoise during these activities.

Operation and maintenance activities within permanently fenced areas are unlikely to directly injure or kill any desert tortoises. Over the life of this project, DesertXpress may need to perform some ground-disturbing maintenance activities outside of fenced areas (i.e., repairing desert tortoise exclusion fence, maintaining utility corridor components, removing debris from culverts). These activities have the potential to injure or kill desert tortoises primarily as a result of vehicle strikes, as workers travel to and from work sites outside of the fenced areas; a limited possibility exists that animals could be injured or killed by equipment or workers moving around a work site.

We do not have extensive information regarding the types of operation or maintenance activities. We anticipate that the potential for injury or mortality of desert tortoises to result from these activities would generally be low because most of these activities would occur within the desert tortoise-proof fence. We expect that activities occurring outside the fence would be infrequent and fairly limited in size and duration. If such activities occurred outside the fence, desert tortoises would be exposed to threats similar to those we described for construction.

Passengers and employees would access the Victorville station via Dale Evans Parkway. Desert tortoises attempting to cross the road may be killed or injured by their vehicles; however, we expect that few individuals will be killed or injured in this manner. We expect few desert tortoises to be killed or injured at this location because of its proximity to Victorville and to the freeway.

Boarman (2002) describes the manner in which rail lines can affect desert tortoises. Because DesertXpress will fence, with permanent exclusion fencing, the 75-foot-wide right-of-way, desert tortoises will be prevented from accessing the rail bed and tracks. If desert tortoises breach the fence or the fence is damaged by flood events, desert tortoises can enter the right-of-way and become trapped between the rails; they then may be injured or killed.

Desert tortoises may become trapped inside the culverts that will be installed throughout the rail alignment if a debris flow occurs while they are in the culvert. Improperly designed riprap or other devices to control erosion can block passage of desert tortoises by making the culverts inaccessible or entrap desert tortoises that may fall into spaces between rocks.

The operation of the high-speed passenger train will generate increased noise and vibration throughout the action area. The recovery plan for the desert tortoise (Service 1994) notes that noise can mask the approach of predators and disrupt communication between individuals; loud noises may damage a desert tortoise's hearing permanently. In a laboratory study, Bowles et al. (1999) demonstrated that most of the subject desert tortoises responded to noise (such as jet noise and sonic booms) by ceasing activities, such as foraging or digging, for periods of time. We cannot assess how far away from the train desert tortoises would be affected and whether or not it will change their behavior. Operation of the train could potentially prevent desert tortoises from re-occupying the area immediately adjacent to the desert tortoise fence. Conversely, the animals, after some time, may become habituated and move back into the area.

Where the alignment is immediately adjacent to the freeway, the fenced right-of-way may provide some benefit to desert tortoises. Currently, drivers along Interstate 15 drop trash from their vehicles, which attracts common ravens; they also pull off the road and disturb habitat and potentially spread non-native weeds. Finally, overheated or burning vehicles can start fires that spread far beyond the freeway right-of-way. These effects are may be eliminated in areas where the freeway is no longer immediately adjacent to desert tortoise habitat.

#### *Increased Predation by Common Ravens and Coyotes*

The construction, operation, and maintenance of the proposed rail line may cause some increased use of the area by common ravens and coyotes because they will be attracted to the human activity. Common ravens are likely to use the newly constructed utility lines and other structures for perching, roosting, and nesting. Increased use of the area by common ravens and coyotes is likely to lead to increased predation of desert tortoises.

Common ravens and coyotes may also be attracted to carcasses of small animals that are killed by trains. We cannot determine whether the train would kill small animals (e.g., kangaroo rats, pocket mice, etc.) that the fence would not prevent from entering the area or that may reside within the fenced area. If carcasses are present, common ravens would certainly be able to find and access them. We are unable to predict if the train operations would have a greater effect on the amount of small animals killed in relation to the highway. Coyotes may also be able to enter the fenced right-of-way; they routinely breach other fences intended to prevent their access to landfills.

DesertXpress has proposed numerous measures to address predation by common ravens and coyotes associated with the project site. These measures include a litter-control program and prompt removal of road-killed animals. Despite these measures, common ravens are likely to use the proposed structures for perching, roosting, and nesting. We cannot assess the degree to which the number of common ravens and coyotes would increase or reasonably predict the amount of predation by common ravens and coyotes that construction, operation, and maintenance of this project is likely to add to baseline levels within the action area. We anticipate that the measures proposed by DesertXpress will likely be somewhat effective in controlling common raven and coyote use of the action area.

#### **General Effects on Critical Habitat of the Desert Tortoise**

In this section, we will consider the general effects of the proposed action on habitat of the desert tortoise. We will use the primary constituent elements of critical habitat as a starting point for this discussion because they provide a thorough description of the habitat components necessary for desert tortoises to thrive. However, we will consider how impacts to the primary constituent elements affect critical habitat with regard to its potential destruction or adverse modification only in those areas where the Service has designated critical habitat. The primary constituent elements of critical habitat for the desert tortoise are: sufficient space to support viable

populations within each of the six recovery units and to provide for movement, dispersal, and gene flow; sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human caused mortality.

With regard to the first primary constituent element, the proposed action would result in the reduction of the space available to support viable populations and to provide for movement, dispersal, and gene flow. The degree that the reduction of the amount of space would affect desert tortoises is a function of the location and quality of the lost habitat. In general, habitat that is of lower quality is not as important for supporting viable populations.

The degree to which movement, dispersal, and gene flow would be affected is related primarily to the location of the lost habitat. For example, lost habitat at an edge beyond which individuals of the species can no longer survive would generally not impede movement, dispersal, and gene flow; conversely, the creation of a barrier in the center of a species' range could severely impede movement, dispersal, and gene flow.

The second through fifth primary constituent elements (sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators) are related to the plant species desert tortoises require for food and shelter, the substrates that are necessary for these plants to grow and for desert tortoises to construct burrows, and the burrows and other shelter sites they use. In short, these features are the components of the environment that relate to a desert tortoise's need for food and shelter. These features would be eliminated in all areas where the rail line or its ancillary structures would be constructed and in temporary construction areas. (Because of the nature of utility corridors for electrical powerlines, we anticipate that relatively small areas of habitat loss would be distributed along a corridor in which most habitat remains undisturbed.) Where DesertXpress would maintain its right-of-way and construct buildings, the loss of habitat would be permanent; in staging and temporary construction areas, these four elements of desert tortoise habitat would be removed on a long term basis; depending on the type of the substrate, the degree of compaction resulting from work activities, weather, and subsequent use, the recovery of these areas could vary from complete (albeit over a period of decades) to non-existent.

Non-native plant species currently occur on the proposed project site and are likely to occur in other portions of the action area at varying densities. Construction, maintenance, and operation of the proposed project have the potential to increase the distribution and abundance of non-native species within the action area due to ground-disturbing activities that favor the establishment of non-native species. In addition, access to the project site and other project features by construction and operations personnel is likely to increase the volume and

distribution of non-native seed carried into the action area. The increased abundance in non-native species associated with this project may result in an increased fire risk, which may result in future habitat loss beyond the action area.

We cannot reasonably predict the increase in non-native species abundance that this project will create within the action area. DesertXpress has proposed measures to monitor for and control invasive species during construction and throughout the operational life of the project; consequently, these measures may reduce the spread of non-native weeds and the related increased risk of fire.

Effects to the sixth primary constituent element, habitat protected from disturbance and human caused mortality, would likely vary, depending upon several factors. The noise and vibration associated with construction would disrupt this element to some degree. This potential exists that this effect would be masked by the noise that currently emanates from Interstate 15, both in terms of the freeway's noise and vibration being indistinguishable to desert tortoises from that of construction and through the habituation to noise and vibration of animals currently residing near the freeway. The introduction of this level of disturbance into habitat that is not adjacent to the freeway may affect desert tortoises in a more substantial manner.

We do not know if the vibration and noise from a train passing by would be substantially different than that currently generated by the freeway. Noise and vibration from the freeway are relatively constant, which may lead to desert tortoises habituating to this disturbance more easily. During operation, the FRA (2010) estimates that trains would pass by any given point fewer than 70 times per day. The potential exists that desert tortoises would habituate to this frequency of disturbance.

We have no information regarding the long-term effects of the operation of rail lines on the distribution of desert tortoises; however, we have not observed an obvious depression in the density of desert tortoises adjacent to rail lines, as has been observed adjacent to roads. The noise and vibration from a high speed train may differ from that emitted by a freight train; we do not know whether these differences, if they occur, would affect desert tortoises differently.

## **Effects of Each Segment on the Desert Tortoise and its Critical Habitat**

### *Segment 1*

**Desert Tortoise.** Construction of the Victorville utility line would affect desert tortoises. Because we expect that few desert tortoises occur in this area and the overall amount of disturbance would be relatively minor, we expect that few desert tortoises are likely to be killed or injured; most individuals encountered are likely to be moved from harm's way. Operation and maintenance of the utility line are also likely to affect few desert tortoises, because of the relatively few individuals present and the low intensity of the activities. Common ravens would use the utility line towers for perching, roosting, and nesting.

Construction of the Victorville OMSF and the passenger station would isolate a small amount of habitat between the facilities and Interstate 15 that would not be disturbed by construction. This area would no longer be available for desert tortoises to use and animals already occupying this patch of habitat could become isolated. Because few occur in close proximity to the urbanized area of Victorville and Interstate 15, we anticipate few tortoises would be affected.

Any other areas of habitat between the proposed alignment and the freeway would be considered lost because desert tortoises would no longer be able to access them if adequate connections to habitat north of the rail line are not maintained; such areas may occur where the proposed right-of-way crosses freeway offramps. These areas are considered to be relatively degraded because of the close proximity to the freeway and very few desert tortoises would likely be present. For these reasons, we anticipate the loss of habitat to be minimal in relation to existing suitable habitat and the number of desert tortoises affected to be very few.

Construction of Segment 1, including its ancillary facilities, would result in a habitat loss of approximately 762.18 acres. This loss of habitat is not substantial in relation to the existing amount of suitable habitat available in large part because it is mostly distributed in a linear manner, adjacent to 17 miles of Interstate 15. The linear nature of the habitat loss and its location adjacent to the freeway decrease, at least to some degree, the severity of the impact for several reasons. First, because the freeway has already severely fragmented habitat in this portion of the desert, the proposed action would not contribute substantially to additional fragmentation. Second, because the habitat loss extends a relatively short distance from the freeway, we expect that most of a desert tortoise's home range would remain in place after construction. This assumption is based on the premise that most home ranges are likely not linear in nature, at least in part because of the decreased amount of desert tortoise sign that is generally found adjacent to freeways (Hoff and Marlow 2002). Third, habitat adjacent to freeways is often degraded for some distance from the edge of the road because of trash, routine maintenance, casual use by drivers, and fires.

Finally, this area is not considered essential for the survival and recovery of the species because it is located outside of critical habitat and does not provide an important linkage between any such areas.

Critical Habitat. This section does not cross any areas of critical habitat. Consequently, none will be affected by this segment.

### *Segment 2C*

Desert Tortoises. Very few desert tortoises would be affected between Lenwood and Barstow because of the development associated with these two areas. In addition, the habitat lost as a result of the construction of the rail alignment is considered to be relatively degraded because of the close proximity to the freeway. For these reasons, we expect few desert tortoises would be present and few would be affected.



The potential exists that more desert tortoises would be affected within the right-of way from Fort Irwin Road to the west side of Calico Dry Lake and from the east side of the dry lake to where the rail alignment reconnects with Interstate 15, because habitat becomes more suitable as distance from the freeway increases. This portion of the project would also fragment habitat between the alignment and the freeway and possibly isolate desert tortoises within this area, if they are present. We understand that DesertXpress will install culverts in washes in this area, but we have no information on how many culverts will be installed. Consequently, the home ranges of some desert tortoises will be bisected by the rail alignment.

The amount of suitable habitat that would be isolated where the rail alignment deviates from the freeway would be approximately 405.56 acres. This amount includes a small portion of designated critical habitat (discussed below); however, the remaining areas are not crucial for the survival and recovery of the species because they are located outside of critical habitat and do not provide an important linkage between any such areas.

Construction of Segment 2C would result in the direct loss of approximately 563.64 acres of habitat, some of which would include critical habitat (discussed below). This loss of habitat is not substantial in relation to the existing amount of suitable habitat available in large part because it is mostly distributed in a linear manner, adjacent to 11 miles of Interstate 15. In addition, this area (excluding designated critical habitat) is not considered essential for the survival and recovery of the species or to provide an important linkage between any such areas.

Critical Habitat. This segment, along with Segment 3b, would cross the Superior-Cronese Critical Habitat Unit and result in a loss of a total of approximately 1,118.78 acres of critical habitat. The affected area would account for 0.15 percent of the total acreage (766,900) within the critical habitat unit.

As the segment deviates from Interstate 15 at Fort Irwin Road and across Calico Dry Lake, the proposed action would affect the first primary constituent element (sufficient space to support viable populations and provide for movements, dispersal, and gene flow) as it separates one portion of the critical habitat unit from another. DesertXpress will install culverts where washes occur along the alignment. As we discussed in the Effects to Desert Tortoises - Construction of Facilities and Rail Alignment section of this biological opinion, many factors would affect whether these culverts adequately maintain connectivity. Because the rail alignment would be, at the most, 0.5 mile from the freeway and the isolated areas are partially developed, we anticipated the habitat would already be degraded, to some degree. In addition, the affected habitat would be a small percentage of the entire habitat within the Superior-Cronese Unit and would not appreciably reduce the function and conservation value of the critical habitat unit.

The potential also exists for this portion of the rail alignment (separated from the freeway right-of-way) to eliminate the primary constituent element from downstream habitat as a result of altered hydrology and, therefore, modified soil conditions and available forage species. Because culverts would be constructed along the alignment to ensure each wash remains active, the



existing hydrological patterns would likely remain. For this reason, and because the habitat is already partially developed, we do not anticipate habitat downstream from the rail alignment to be altered to an extent that would eliminate the second primary constituent element.

The second through sixth primary constituent elements (sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human caused mortality) would be eliminated from the entire segment's construction area. This loss would not appreciably diminish the function and conservation value of the critical habitat unit, because a majority of the loss of habitat would occur in a linear manner through habitat that has already been degraded to some degree, due to its proximity to the freeway.

In summary, the effects on the Superior-Cronese Critical Habitat Unit from constructing the proposed action would likely be minimal. Only a small portion (0.15 percent) of the entire critical habitat designation for the desert tortoise would be affected. Habitat that would be affected is already degraded to some degree and culverts would be used to ensure connectivity across the proposed project; therefore, the survival and recovery function within designated critical habitat would not be substantially affected by the proposed project activities.

### *Segment 3B*

Desert Tortoises. The potential exists that more desert tortoises would be affected in this segment than in the previous two because it is more isolated from development and high quality habitat is present. The alignment would be adjacent to the freeway for its entire length; therefore, we continue to expect the number of affected desert tortoises to be small. Culverts will be installed throughout the alignment in the same locations where culverts are located underneath Interstate 15, to promote connectivity with the far side of Interstate 15.

This segment also includes a few areas where the habitat undisturbed by the proposed project would remain between the rail line and the freeway. This potential isolation of habitat would affect desert tortoises in the same as we discussed for Segment 1; however, because we expect more desert tortoises to be present in this segment, the overall impact may be somewhat greater.

Construction of the Baker utility line would affect very few, if any, desert tortoises because they would likely be absent in this area because of existing disturbance associated with the community of baker and the generally unsuitable habitat in this area.

Construction of Segment 3b, including ancillary facilities, would result in a habitat loss of approximately 2,536.04 acres (including critical habitat; we will discuss the effects on critical habitat later in this section). We consider the affected areas to be relatively degraded because of their proximity to the freeway and not essential for the survival and recovery of the species or to

provide an important linkage between any such area. The fact that this habitat loss would be mostly distributed in a linear manner along 85 miles of Interstate 15 also decreases its overall value for the desert tortoise.

**Critical Habitat.** The western part of this segment would pass through the Superior-Cronese Critical Habitat Unit. We discussed the general effects on the primary constituent elements of critical habitat and the scale of the impacts in the General Effects on Critical Habitat of the Desert Tortoise and Segment 2C – Critical Habitat sections of this biological opinion, respectively.

The habitat loss in the Superior-Cronese Critical Habitat Unit as a result of constructing Segment 3 would not appreciably diminish the conservation value and function of critical habitat because most of the loss would occur in a linear manner, over approximately 33 miles of the critical habitat unit. Additionally, a portion of this area has already been degraded to some degree, due to its proximity to Interstate 15.

This segment would also pass through the Ivanpah Critical Habitat Unit and result in a loss of approximately 734.46 acres. The affected area would account for 0.12 percent of the total acreage (632,400 acres) within the critical habitat unit.

In both Segments 2c and 3, the proposed action would not appreciably affect the first primary constituent element (sufficient space to support viable populations and provide for movement, dispersal, and gene flow) because the freeway already constitutes a substantial barrier; desert tortoises can cross the freeway only at existing culverts. The proposed action may not increase the barrier to gene flow because the existing culverts under Interstate 15 would be extended under the rail alignment. Research along Highway 58 has demonstrated that desert tortoises will use long culverts under roads; we are not aware of whether the length of a culvert may ultimately pose a barrier in and of itself.

The second through sixth primary constituent elements (sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human caused mortality) would be eliminated from the construction area. This loss would not appreciably diminish the conservation value and function of critical habitat, because the loss of habitat would occur in a linear manner through habitat that has already been degraded to some degree, due to its proximity to the freeway.

The effects on the Ivanpah Critical Habitat Unit from constructing the proposed action would likely be minimal because only a small portion (0.12 percent) of the critical habitat unit would be affected. Therefore, this loss would not appreciably diminish the conservation value and function of critical habitat because it would occur in a linear manner over approximately 25

miles of the critical habitat unit. Additionally, a portion of the habitat that would be lost has already been degraded to some degree, due to its proximity to the freeway.

#### *Segment 4C*

Desert Tortoises. In the Mountain Pass area, where the elevation is higher and the terrain is rockier, we expect that very few, if any, desert tortoises would be affected because very few would be present.

As the segment crosses the alluvial fan in Ivanpah Valley, we expect more desert tortoises to be affected because the proposed alignment is located far from Interstate 15 through most of this area. Consequently, construction, operation, and maintenance of this segment of the proposed rail line would likely have the greatest effect on desert tortoises of the entire right-of-way. Culverts and over crossing structures will be installed throughout this segment (at every natural drainage and at regular intervals) to attempt to ensure that construction and operation of the alignment does not alter the existing hydrology and plant communities of the alluvial fan, either uphill or downhill of the right-of-way. We anticipate the number of crossings that would be installed across the alignment throughout the valley, to be sufficient enough to allow for continued movement of desert tortoises across the project.

The potential effect of the proposed rail line on the function and habitat quality of the alluvial fan in the Ivanpah Valley is another area of the proposed action where the design-build nature of the project presents challenges to a thorough analysis. Consequently, the Service will conduct this analysis under the assumption that habitat quality in the Ivanpah Valley will not be altered by the proposed rail line, except for areas that are directly affected by construction. Upon completion of the final design, the FRA and Service will conduct an independent review of the potential effects of that design upon the alluvial fan; this review will be conducted by someone who is familiar with the geomorphological process of alluvial fans. If this review indicates that the effects of the rail line would be different than that considered in this biological opinion, the FRA would re-initiate formal consultation. The FRA and Service discussed and agreed upon these approaches to these issues in a telephone conversation and exchange of electronic mail on April 1, 2011 (Steinwert 2011).

If the function of the alluvial fan is disrupted, we expect that the effects would be similar to what's visible in other situations that may be similar to the proposed action. For example, structures built across alluvial fans (e.g., dikes constructed to protect roads, large canals in Imperial County) have resulted in the pooling of water against the uphill side of the structure. This pooling generally results in the accumulation of finer materials against the structure; these materials tend to reduce infiltration of water into the ground, the growth of numerous species of weedy plants, and a reduction in the diversity of plants normally found on alluvial fans. Effects on the downhill side of the structure are generally even more extensive. The reduction in the amount of sheet flow across the alluvial fan alters the plant community as large areas of the fan receive less water during rainstorms. Conversely, washes that are downstream of culverts receive more water and the plant community in these areas is converted to species that require

more water.

Desert tortoises are distributed across the alluvial fans in Ivanpah Valley; consequently, they are likely deriving their ecological needs at least in part from the dynamic processes that occur on alluvial fans. If the proposed alignment alters these processes, the habitat quality of the alluvial fans could be severely diminished. Decreased habitat value would likely lead to an overall decrease in the number of desert tortoises in this area.

As the segment moves closer to Ivanpah Dry Lake and the community of Primm, we expect few desert tortoises to be affected because fewer animals would occur in this area. Although the quality of habitat improves north of Primm, as the distance from the dry lake bed increases, the proximity of the segment in this area to Interstate 15 would likely cause the number of desert tortoises present to remain low; therefore, we anticipate few would be affected.

In Nevada, the rail alignment would be constructed within the Nevada Department of Transportation right-of-way for Interstate 15, which is fenced to exclude desert tortoises. This section includes the adjacent Large-Scale Translocation Site where over 7,000 desert tortoises have been translocated beginning in 1997. Tortoise densities within this fenced section should be very low; desert tortoises present would have entered through breaches in the fence from adjacent habitat.

Construction of Segment 4, including ancillary facilities, would result in a habitat loss of approximately 890.09 acres. Although this area is not within critical habitat, it provides important connectivity between the Ivanpah Critical Habitat Unit to the southwest and the Piute-El Dorado Critical Habitat Unit to the east. The proposed rail line is likely to decrease connectivity to some degree within a portion of Ivanpah Valley, where it leaves the freeway and travels across the alluvial fan. We do not expect connectivity to be completely severed in this area because DesertXpress intends to install numerous culverts and over crossing structures. Given that desert tortoises are relatively conservative genetically, the proposed alignment is unlikely to result in severe long-term effects with regard to gene flow because at least some individuals would cross the alignment over time.

The effect of the rail line on desert tortoises whose home ranges are severed or reduced would be more immediate. Desert tortoises that lose part of their home range may shift their range, which could bring them into conflict with neighboring desert tortoises. If they are unable to shift their home range because of dominant neighbors or because unsuitable habitat bars prevents it, these animals may not breed and may eventually become stressed and die.

Finally, desert tortoises that have been translocated from the solar power plant that is currently under construction in Ivanpah Valley may have moved into the proposed alignment of the rail line. Some potential exists that the movement of these animals out of harm's way during construction may cause levels of stress that are greater than those that would be experienced by a desert tortoise being moved for the first time. If these individuals experience additional stress, their translocation may kill or injure them.

Critical Habitat. This segment would not cross any areas of critical habitat. Consequently, none would be affected by this segment.

*Segment 5b*

Desert Tortoise. North of the Sloan Interchange on Interstate 15, we expect desert tortoises would be relatively uncommon because of degraded habitat conditions immediately adjacent to the highway and a long history of mortalities along the unfenced section of the freeway.

Construction of Segment 5, including ancillary facilities, would result in a habitat loss of approximately 740.18 acres. We consider this to be a relatively small amount in relation to the existing amount of suitable habitat available, especially because this disturbance would occur in a linear manner along 25 miles of the freeway. In addition, the area is not considered essential for the survival and recovery of the species and is not important as a linkage between such areas.

Critical Habitat. This segment would not cross any areas of critical habitat. Consequently, none would be affected by this segment.

*Segment 6*

Desert Tortoise. From 1.5 miles south of Sloan Road to the interchange of Interstate 15/St. Rose Parkway, the segment would be adjacent to Interstate 15 and the habitat would be highly degraded or absent. Because of the proximity to the freeway and to the urbanized area of Las Vegas, we anticipate very few desert tortoises to be present.

The remainder of the segment, east of Interstate 15/St. Rose Parkway interchange, would be within the greater Las Vegas area and desert tortoise habitat would be absent. Consequently, desert tortoises would not be affected by this segment.

Construction of Segment 6, including ancillary facilities, would result in a habitat loss of approximately 152.9 acres. We consider this to be a relatively small amount in relation to the existing amount of suitable habitat available. In addition, the area is not considered essential for the survival and recovery of the species and is not important as a linkage between such areas.

Critical Habitat. This segment would not cross any areas of critical habitat. Consequently, none would be affected by this segment.

**Effects of Compensatory Measures**

DesertXpress proposes to provide funds to the BLM to implement management actions to benefit desert tortoises over time. These actions could involve habitat acquisition, population or habitat enhancement, research, reducing loss of individual animals, funding of line distance sampling, and preserving distinct population attributes. The implementation of these measures would benefit desert tortoises by promoting their long-term conservation and providing us with

additional information to guide future recovery actions. Some potential exists that the implementation of these actions may have short-term adverse effects on desert tortoises. Because we do not know the specific manner in which these funds would be expended, we cannot analyze these effects at this time. Instead, the BLM would need to consult with us when it begins planning to implement these actions.

## Summary

### *Desert Tortoise*

Based upon the best information, we estimate that approximately 85 desert tortoises occur within the areas to be disturbed as a result of construction of the proposed rail line and its ancillary facilities. Because of the measures proposed by the FRA and DesertXpress, we expect that most of these desert tortoises would be moved from harm's way. Because they would be moved a short distance from their point of capture, we do not expect that these desert tortoises would be exposed to substantially elevated levels of stress or threat of exposure to disease. Because we expect the most of the action area to support few desert tortoises, we expect that desert tortoises moved from harm's way into adjacent habitat are unlikely to experience overcrowding because of the presence of resident animals.

We expect that some desert tortoises may be killed or injured by construction, operation, and maintenance of the proposed rail line and its ancillary facilities. Because we do not know that precise number of desert tortoises in the action area, the specific instances when proposed measures would fail to protect desert tortoises, and the circumstances when workers engaged in operation and maintenance activities would encounter desert tortoises, we cannot predict how many desert tortoises are likely to be killed or injured as a result of the proposed action. Because of the protective measures and the fact that most of the rail line would be sited adjacent to Interstate 15, we expect that relatively few desert tortoises would be killed or injured. The loss of these individuals would not appreciably affect the reproduction or numbers of desert tortoises in the wild.

The proposed project may result in a slight increase in subsidies to common ravens as a result of new utility lines and structures. We cannot determine, at this time, whether the new train would alter the number of carcasses that would be available for scavenging (i.e., the train may result in more or fewer vehicle strikes of small animals than currently occurs along Interstate 15).

In general, the loss of habitat would not appreciably diminish the distribution of the desert tortoise because most of the habitat loss would occur along Interstate 15 in an area that is disturbed by ongoing activity. The segment of rail line that traverses the alluvial fans in Ivanpah Valley is likely to decrease connectivity within the valley to some degree because it introduces a new barrier (with numerous openings) into an area. The potential also exists that the rail line may alter geomorphological processes on the alluvial fan, which could result in further degradation of habitat and, over time, a decrease in the number of desert tortoises.

*Critical Habitat*

The proposed action would result in the loss of approximately 1853.24 acres of critical habitat. Most of this loss would occur immediately adjacent to Interstate 15, where ongoing activities have degraded the primary constituent elements of critical habitat to some degree. For example, the freeway currently fragments habitat to a large degree (although in the Superior-Cronese Critical Habitat Unit, critical habitat is located only on the north side of the freeway) and the plant community and substrates immediately adjacent to the road are often degraded by road maintenance and vehicles pulling to the side of the road.

Approximately 1118.78 acres in the Superior-Cronese Critical Habitat Unit and 734.46 acres in the Ivanpah Critical Habitat Unit are likely to be lost. These losses represent approximately 0.15 and 0.12 percent of these units, respectively, and 0.03 percent of the entire designated area of critical habitat (6,446,200 acres). Because of the relatively small area of critical habitat that would be lost and the location of most of this area adjacent to Interstate 15, the proposed action is unlikely to appreciably reduce the conservation value and function of critical habitat of the desert tortoise.

**CUMULATIVE EFFECTS**

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered to have cumulative effects because they require separate consultation pursuant to section 7 of the Act. Much of the proposed right-of-way crosses land managed by the Bureau or Federal Highway Administration; because any activities undertaken in these areas would require Federal approval, they would not be considered in this section. We are unaware of any future non-federal projects that are reasonably certain to occur in the action area that lie outside of Bureau lands or the Federal Highway Administration right-of-way.

**CONCLUSION**

After reviewing its status, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the desert tortoise. We have reached this conclusion because:

1. Project activities are likely to kill or injure few desert tortoises because the FRA and DesertXpress will implement numerous measures to reduce the potential that desert tortoises will occupy project work sites (i.e., clearance surveys, exclusion fencing, moving desert tortoises from harm's way, qualified biologists).
2. The FRA and DesertXpress will implement measures to reduce the potential for increased predation by common ravens and spread of non-native plant species.

3. This proposed project would not result in a substantial loss of desert tortoise habitat in areas that the Service considers crucial for the conservation of desert tortoises (e.g., desert wildlife management areas, critical habitat, etc.).
4. The proposed project would disrupt connectivity to a small degree in an area that serves as an important linkage between two critical habitat units.

After reviewing its status, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to adversely modify the critical habitat of the desert tortoise. We have reached this conclusion because:

1. Most of the critical habitat that would be lost as a result of the proposed action lies adjacent to Interstate 15 and the primary constituent elements within these areas have been degraded to some degree by their proximity to the freeway.
2. The amount of critical habitat that would be lost comprises a small portion of the total amount of critical habitat; this lost would not compromise the conservation function and value of critical habitat of the desert tortoise.

#### INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of an incidental take statement.

The measures described in this document are non discretionary. The FRA has a continuing duty to regulate the activities covered by the incidental take statement in this biological opinion, which are applicable to that agency's project. If the FRA fails to include the terms and conditions of this incidental take statement as enforceable conditions of its authorization of the rail line, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the FRA must report the progress of its action and its impact on the desert tortoise to the Service as specified in the incidental take statement [50 Code of Federal



Regulations 402.14(i)(3)].

*Construction of the Rail Line and its Ancillary Facilities*

We anticipate that all desert tortoises within the right of way of the proposed rail line, the temporary construction areas, and areas used for ancillary facilities are likely to be taken during construction. Most of these individuals will be captured (the form of take) and moved from harm's way. Based on the best available information, we anticipate that up to 85 desert tortoises will be taken in this manner.

We anticipate that a few desert tortoises within the right of-way of the proposed rail line, the temporary construction areas, and areas used for ancillary facilities will be killed or wounded (the form of take) during construction. We cannot quantify this amount in large part because the protective measures undertaken during the construction are likely to reduce the number of desert tortoises that would otherwise be killed or wounded. Because we cannot quantify (i.e., predict) the amount of take associated with the construction of the project, we will include a threshold for re initiation of formal consultation for this form of take in the terms and conditions of this biological opinion.

We anticipate that construction of the rail line and its ancillary facilities will result in the take of desert tortoise eggs. As we discussed in this biological opinion, we have not attempted to quantify the number of eggs or nests that may be present because of the numerous assumptions such an estimate would require. All desert tortoise eggs within the action area are likely to be taken, either by being destroyed (killed) or moved from harm's way (capture).

*Operations and Maintenance of the Rail Line and its Ancillary Facilities*

We anticipate that desert tortoises will be taken in the form of capture, injury, or mortality during the operational phase of the proposed rail line. We expect few desert tortoises will be taken during this time but cannot quantify this amount for several reasons. We cannot predict how often the operations or maintenance would occur, whether desert tortoises would be present when these activities occurred, or if desert tortoises would be present when these activities occurred. Finally, protective measures undertaken during these activities are likely to reduce the number of desert tortoises that would otherwise be killed or injured. Because we cannot quantify (i.e., predict) the amount of take associated with the operation and maintenance of the rail line, we will include a threshold for re initiation of formal consultation for this potential source of take in the terms and conditions of this biological opinion.

The exemption to the prohibition against take provided by this incidental take statement applies only to activities authorized by the FRA and conducted by DesertXpress within the action area defined in this biological opinion.

## REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of desert tortoises during the implementation (i.e., construction, operation, and maintenance) of the DesertXpress high speed train project:

1. FRA and DesertXpress must ensure that the level of incidental take anticipated in this biological opinion is commensurate with the analysis contained herein.
2. FRA and DesertXpress must ensure that desert tortoises do not enter fenced project facilities for the life of the project.
3. FRA and DesertXpress must ensure that culverts remain clear of debris for the life of the project and are constructed and maintained to ensure desert tortoises may safely use them.
4. FRA and DesertXpress must assess whether to move desert tortoises from areas of habitat that are completely or partially isolated as a result of construction of the proposed project.
5. FRA and DesertXpress must ensure that the rail line and its ancillary facilities do not provide subsidies to common ravens.
6. FRA and DesertXpress must ensure that they coordinate with the BLM if desert tortoises that have been translocated from the Ivanpah solar plant are encountered during construction.

Our evaluation of the proposed action includes consideration of the protective measures proposed by FRA and DesertXpress in the biological assessment and reiterated in the Description of the Proposed Action section of this biological opinion. Consequently, any changes in these protective measures may constitute a modification of the proposed action that causes an effect to the desert tortoise that was not considered in the biological opinion and require re initiation of consultation, pursuant to the implementing regulations of the section 7(a)(2) of the Act (50 Code of Federal Regulations 402.16). The reasonable and prudent measures and terms and conditions are intended to complement the protective measures proposed by FRA and DesertXpress.

## TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the FRA and DesertXpress must comply with the following terms and conditions, which implement the reasonable and prudent measures, described above and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:

- a. To ensure that the measures proposed by the FRA and DesertXpress are effective and are being properly implemented, the FRA or DesertXpress must contact the Service immediately if it becomes aware that a desert tortoise has been killed or injured by project activities. At that time, the FRA or DesertXpress must review the circumstances surrounding the incident with the Service to determine whether additional protective measures are required. Project activities may continue during the review, provided that the proposed protective measures in the project description and any appropriate terms and conditions of this biological opinion have been and continue to be fully implemented.
- b. If five desert tortoises are injured or killed as a result of construction of the DesertXpress project, consultation must be re initiated on the proposed action, pursuant to the implementing regulations for section 7(a)(2) of the Endangered Species Act at 50 Code of Federal Regulations 402.16.
- c. If two desert tortoises are injured or killed as a result of operation and maintenance of the DesertXpress project in any calendar year, consultation must be re initiated on the proposed action, pursuant to the implementing regulations for section 7(a)(2) of the Endangered Species Act at 50 Code of Federal Regulations 402.16. We have not established a re initiation threshold for moving desert tortoises from harm's way during operation and maintenance because we cannot predict, with an accuracy, how many desert tortoises may be encountered over the life of the proposed rail line; additionally, the short-distance movement of these animals from harm's way by authorized biologists is unlikely to kill or wound these individuals.

2. The following term and condition implements reasonable and prudent measure 2:

The FRA must ensure that DesertXpress monitors, during construction and operation, the integrity of all desert tortoise exclusion fencing on a regular basis and following any rain events that result in surface flow of water in washes within the action area.

3. The following terms and conditions implement reasonable and prudent measure 3:

- a. The FRA must ensure that DesertXpress uses culverts that allow effective passage of desert tortoises but are large enough that desert tortoises are unlikely to use the culverts as burrows. At this time, we estimate that any box culvert must be 3 feet on a side and pipe culverts 3 feet in diameter; we strongly recommend that box culverts be used because desert tortoises are less likely to use them as burrows. At a minimum, culverts would need to be large enough. The FRA must ensure regular maintenance of the culverts so desert tortoises do not use accumulated debris to construct burrows. If a culvert under the rail line is tied to an existing culvert under

Interstate 15 or the Union Pacific Railroad, the FRA may forego these specifications if they are incompatible with the existing culverts.

- b. The FRA must ensure that DesertXpress uses culverts that will not entrap desert tortoises or block their passage. Specifically, all erosion control devices must be constructed and maintained in a manner that allows desert tortoises to enter and leave them freely.
4. The following terms and conditions implement reasonable and prudent measure 4:
  - a. The FRA must ensure that DesertXpress installs a sufficient number of culverts in Segment 2c where it deviates from Interstate 15 (excluding on the dry lake bed), to ensure any desert tortoise whose home range occurs across the action area could continue to access both sides easily. In general, the distance between culverts must be no greater than 0.25 mile unless topography is an obstacle.
  - b. Authorized biologists must survey areas that could become isolated from the main body of habitat where the alignment deviates slightly from the freeway (e.g., at offramps). If desert tortoises are present and construction of the project may disrupt their behavior or if a culvert or other access to the main body of habitat does not exist or will not be provided, the authorized biologist must relocate them to the side of the rail line that is adjacent to the main body of habitat. In any event of uncertainty, the authorized biologist must contact the Service for guidance prior to moving the desert tortoise; during this time, the authorized biologist may install fencing around the area of the desert tortoise's burrow so he or she may find it again.
5. The following term and condition implements reasonable and prudent measure 5:

All new utility lines and ancillary structures associated with the DesertXpress project must be designed in a manner that will reduce the likelihood of nesting by common ravens. The FRA or DesertXpress, as appropriate, must monitor these utility lines and ancillary structures to ensure the effectiveness of their measures and implement adaptive management, in coordination with the Service, if the initial measures are unsuccessful. The FRA and DesertXpress must ensure that any common ravens nests established on new utility lines and ancillary structures are removed within one year at a time when they are inactive.
6. The following term and condition implements reasonable and prudent measure 6:

During construction of the rail line, if desert tortoises that have been translocated from the Ivanpah solar plant site need to be moved from harm's way, the FRA and DesertXpress must coordinate their capture and movement with the BLM to ensure that the health and welfare of these animals is not compromised. Prior to the onset of construction, the FRA or DesertXpress must contact the BLM to establish appropriate

protocols to follow in the event these animals are encountered.

## REPORTING REQUIREMENTS

By January 31 of any year the proposed action is under construction and during its operation, the FRA must provide a report to the Service that provides details on the effects of the action on the desert tortoise. Within 60 days of the completion of the proposed action, FRA must provide a summary report that provides, in addition to the following information, a complete overview of the amount of habitat disturbed and the number of desert tortoises that were taken. These reports must include information on any instances when desert tortoises were killed, injured, or handled, the circumstances of such incidents, and any actions undertaken to prevent similar instances from re occurring. We recommend that FRA provide us with any recommendations that would facilitate the implementation of the protective measures while maintaining protection of the desert tortoise. We also request that FRA provide us with the names of any monitors who assisted the authorized biologist and an evaluation of the experience they gained on the project. The qualifications form on our website ([http://www.fws.gov/ventura/sppinfo/protocols/deserttortoise\\_monitor-qualifications-statement.pdf](http://www.fws.gov/ventura/sppinfo/protocols/deserttortoise_monitor-qualifications-statement.pdf)), filled out for this project, along with any appropriate narrative would provide an appropriate level of information. This information would provide us with additional reference material in the event these individuals are submitted as potential authorized biologists for future projects.

## DISPOSITION OF DEAD OR INJURED DESERT TORTOISES

Within 3 days of locating any dead or injured desert tortoises, you must notify the Ventura Fish and Wildlife Office by telephone (805 644 1766) and by facsimile (805 644 3958) or electronic mail. The report must include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

Injured desert tortoises must be taken to a qualified veterinarian for treatment. If any injured desert tortoises survive, FRA or DesertXpress must contact the Service regarding their final disposition. DesertXpress must develop and maintain, for the duration of the project, a list of veterinarians qualified to work with desert tortoises.

FRA and DesertXpress must take care in handling dead desert tortoises to preserve biological material in the best possible state for later analysis. If desert tortoises are killed by project activities, the Service will instruct the FRA or DesertXpress regarding the final disposition of the carcass.

## CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

We recommend that the FRA select Segment 4a, which would be located on the opposite side of Interstate 15 from the currently proposed route. This route would have far fewer impacts to desert tortoise and habitat within Ivanpah Valley than the currently suggested route because it would be closer to the freeway, cause less fragmentation of habitat, and likely affect far fewer desert tortoises. We recognize that selection of this route after conclusion of this consultation would require re initiation of formal consultation; however, we have written this biological opinion in a manner that would facilitate completion of a new biological opinion in an expedited time frame, if this alternative is ultimately selected.

We recommend that the FRA and DesertXpress work with the Desert Tortoise Recovery Office to design and implement a study that would investigate effects to the desert tortoise generated by the high speed train in relation to the freeway, including the distance out from the sources that effects would impact desert tortoises.

We recommend that the FRA and DesertXpress monitor whether the operation of the high speed train results in a change in the number of small animals that are killed by Interstate 15 and whether the train itself results in the mortality of small animals. If the overall amount of mortality increases, this increase would provide an additional subsidy to common ravens. If this subsidy is present, we would recommend that the FRA and DesertXpress attempt to reduce the amount of mortality. If this effort is not successful, we recommend that DesertXpress contribute to the regional management fund for common ravens; this fund will be used to control and manage common ravens throughout the California desert.

We recommend that DesertXpress contribute a small portion of the cost of each ticket to implement recovery actions for the desert tortoise. We have discussed this concept with DesertXpress and its consultants during informal consultation. If DesertXpress is agreeable to this recommendation, we suggest that DesertXpress work with the Desert Tortoise Recovery Office to consider a specific action or actions to fund. We further recommend that DesertXpress work with the Desert Managers Group to use its literature and advertising space to promote awareness of the desert's resources and how to protect them.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.



## REINITIATION NOTICE

This concludes formal consultation on FRA's proposal to authorize and permit the DesertXpress high speed passenger train project along a 200-mile corridor from Victorville, California, to Las Vegas, Nevada. Re-initiation of formal consultation is required where discretionary federal involvement or control over the action has been retained or is authorized by law and: if the amount or extent of taking specified in the incidental take statement is exceeded; if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or if a new species is listed or critical habitat designated that may be affected by the identified action (50 Code of Federal Regulations 402.16).

If you have any questions regarding this biological opinion, please contact Danielle Dillard of my staff at (805)644 1766, extension 315.

Sincerely,

/s/: Diane K. Noda

Diane K. Noda  
Field Supervisor

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Appendix C: Final EIS Comments and Responses

Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
F-1	Air Quality	EPA	While we recognize that the project could reduce air quality impacts by reducing freeway traffic, EPA remains concerned about localized impacts during both construction and operation. We support the decision to choose the EMU technology option, but continue to encourage FRA to commit to mitigation of localized impacts, particularly near sensitive receptors and in environmental justice communities.	<p>Following procedures under the General Conformity Rule (48 FR 63214), the FRA assessed the potential for the Project to result in a CO hotspot. These analyses were conducted near all proposed station area sites in Victorville and Las Vegas, including Central Station B, which is most proximate to sensitive receptors; both Victorville Station 3 and Las Vegas Central Station B are located in or adjacent to an environmental justice community. The analysis found that the addition of project related traffic would minimally increase CO levels above baseline measurements at various locations around the proposed stations. As such, no mitigation was found to be necessary for localized operational air quality impacts.</p> <p>The Final EIS acknowledges the potential for the project to result in construction period impacts. To minimize such effects, three air quality mitigation measures were included in the Final EIS and are incorporated in this Record of Decision as measures to minimize harm during the construction period.</p>
F-2	Air Quality	EPA	In our comments on the DEIS, we noted the absence of a thorough discussion of localized PM10 air quality impacts and we recommended that the FEIS include a qualitative analysis of potential PM10 hot spot impacts. The FEIS states that it is appropriate to predict concentrations of PM10 and PM2.5 on a regional and localized basis, and includes an analysis of CO hot spot impacts, but does not contain an analysis of localized PM10 impacts.... We remain concerned about potential hot spot impacts during construction. While the FEIS indicates that the mitigation measures will reduce total emissions levels, the FEIS does not justify that sensitive receptors in the vicinity of construction activities will not experience adverse impacts. For example, the FEIS notes that single-family residential development is located approximately 250 feet to the north and to the south of the proposed Frias Substation. We also note in our comments below the proximity of residential areas to the Preferred Alternative Las Vegas Central Station B site option. In order to mitigate potential adverse impacts to sensitive receptors in the vicinity of construction activities, we encourage FRA to include commitments to aggressive mitigation measures in the ROD.	<p>In assessing project impacts, the FRA followed procedures set forth in the General Conformity Rule (48 FR 63214). Under the General Conformity Rule, projects are not required to undergo an assessment of particulate matter concentrations. Particulate matter concentration “hot spots” must be assessed for projects subject procedures set forth in the Transportation Conformity Rule (40 CFR 51 and 93); these procedures apply only to projects whose lead agency is either FHWA or the Federal Transit Administration.</p> <p>The FRA did evaluate particulate matter effects for project construction and operations. For construction, PM10 levels were all below the General Conformity de minimis threshold in both the operative air districts. During project operations, PM10 levels in the respective air basins would be substantially reduced as a result of diverting automobile trips to the electric-powered train.</p> <p>As noted above in the response to comment F-1, the analysis identified no effects related to localized CO concentrations as a result of the Project; mitigation has been incorporated to address localized construction-period air quality effects.</p>
F-3	Air Quality	EPA	The FEIS states that construction activity would result in pollutant levels that would exceed general conformity de minimus levels without mitigation. It states that Mitigation Measures AQ-1, AQ-3, and AQ-5 will be required to reduce construction period emissions to below general conformity de minimus thresholds. Accordingly, FRA should commit to the mitigation measures that will reduce emissions to below the de minimus level in the ROD. All applicable state and local requirements for reduction of PM and other toxics from construction-related activities should also be included in the	<p>The Final EIS acknowledges the potential for the project to result in construction period impacts to air quality. To minimize such effects, three air quality mitigation measures were included in the Final EIS and are incorporated in this Record of Decision as measures to minimize harm during the construction period.</p>

Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
			ROD.	
F-4	Air Quality	EPA	The FEIS response to comments section states that the locations where traffic levels would be the highest would be at passenger stations, and that the Victorville and Las Vegas passenger stations are not located near sensitive land uses. However, we note that the FEIS provides information to the contrary, stating in the Land Use and Community Impacts Chapter of the FEIS that residential uses are within approximately 300 feet of the Preferred Alternative Las Vegas Central Station B site option and that the residents could be exposed to air quality, traffic, and noise impacts associated with the station. EPA has concerns about potential MSAT impacts to these residents, particularly because this is an environmental justice community. In order to mitigate potential adverse impacts to this community, we encourage FRA to include commitments to aggressive mitigation measures in the ROD, including design options to minimize MSAT and other localized air emissions.	<p>Please see the response to comment F-1 above regarding evaluation of potential pollutant concentrations near the Las Vegas Central Station B site. Also, as stated in Draft EIS Section 3.11.1.6, the EPA has not yet released guidance on how to evaluate the effect of future rail lines on ambient concentrations of urban air toxics in the context of NEPA. Furthermore, no Federal, California or Nevada ambient standards exist for mobile source air toxics. Specifically, EPA has not established NAAQS or provided other project-level standards for hazardous air pollutants.</p> <p>FRA communicated with the EPA in a conference call on April 24 2011, during which the FRA agreed with EPA's that any future Las Vegas passenger rail station should be well-served by public transportation options, reducing the need for individual automobile travel and thus resulting in lower emissions of air pollutants in and around the station site. As indicated in this conference call, the Applicant has initiated discussions with transit service providers in the Las Vegas area to identify how either of the Las Vegas station site options might be served by the rerouting of existing bus lines or the introduction of new lines. As described in Final EIS Section 2.3.2.2 and depicted in Supplemental EIS Figure S-2-6, station design in both Victorville and Las Vegas will be able to accommodate bus ingress and egress.</p>
F-5	Alternatives	Olympia Companies	It appears that there are options for both the West and East side of I-15.... [Olympia Companies] strongly encourages using the East side of I-15 for the alignment of this facility. There is none or very minimal residential on the East side. Also, many if not most of the people that will use the DesertXpress are coming to visit The Strip (which is located on the East side of I-15).	In Segment 6, which includes the metropolitan Las Vegas area, the alignment alternative selected for the Preferred Alternative is Segment 6B, which runs on the west side of the I-15 freeway. The other alignments evaluated for this area were Segment 6A, which would run in the median of the I-15 freeway, and Segment 6C, which would run along the Union Pacific Railroad corridor west of I-15. Per Final EIS Table F-2-5, an alignment outside the I-15 corridor between Primm and Las Vegas was considered but dismissed from further analysis owing to the developed nature of the lands outside the freeway corridor, and the resultant potential to traverse developed properties.
F-6	Alternatives	Glendon	Who is going to ride a train with a destination like Victorville? Consider the magnetic train plan directly to Anaheim, CA. Futuristic, creative – makes sense.	<p>The Applicant has demonstrated (through the ridership study, which FRA independently reviewed and verified) that there are logical reasons and reasonable expectations of ridership associated with a Victorville station. For example, FRA's independent review conducted by Cambridge Systematics states that "the location of the Victorville terminal would be passed by virtually every auto traveler going between Southern California and Las Vegas." Ridership Forecast Review at 5 (Feb. 2008). Similarly, another independent review conducted by Steer Davies Gleave provides: "The DesertXpress High Speed Train is to run from Victorville, CA to Las Vegas, NV. Victorville is 80 miles northeast of downtown Los Angeles and located on the existing I-15 highway running between LA and Las Vegas. All drivers travelling from Southern California to Las Vegas must pass Victorville" DesertXpress Ridership &amp; Audit Ridership &amp; Revenue Audit Technical Memorandum: FRA Summary at 2 (Sept. 2007). See Figure D of the Final EIS Project Background and Executive Summary chapter.</p> <p>Please see Final EIS Section 1.6.1, which describes the relationship between the DesertXpress Project and the California-Nevada Interstate Maglev Train project. Also see Section 1.6.2 of the Final EIS, which describes the potential for a future connection to a southern California high-speed rail station (Palmdale) as a separate project with</p>

Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
				independent utility from DesertXpress.
F-7	Alternatives	City of Las Vegas	The downtown area includes approximately 99 hotels and motels, including 17 casinos with a combined room capacity of 15,561. In addition, the Fremont Street Experience has a daily visitor attendance of approximately 25,000 people. The exclusion of the Downtown Station from the preferred alternative of the Environmental Impact Statement will result in the further bifurcation of Las Vegas tourism between the southern Las Vegas Boulevard and the City of Las Vegas Downtown. The omission of the Downtown Station from the proposed DesertXpress project is a detriment to the City of Las Vegas and the Las Vegas valley as a whole. Please reconsider the preferred alternative.	This comment indicates the City's preference for the Las Vegas Downtown station, which was not included in the Agency Preferred Alternative. Both the Las Vegas Southern Station as well as the Central Station B sites have been included in the Agency Preferred Alternative. These sites are in closer proximity to the Las Vegas Strip, which is estimated to have over 60,000 hotel rooms and consequently contains many of the visitor-serving uses the DesertXpress project would serve. Employing the Downtown station would also require the longest length of track and the longest travel time of all station sites considered and thus would be the most costly to construct and operate and could also hinder ridership. Moreover, in a comment letter on the Supplemental Draft EIS, (S-41) the Nevada Department of Transportation advised the FRA of a probable lack of space to accommodate the Segment 7A or 7B alignments within the I-15 corridor. (See Final EIS Table F-4-2, comment S-41). For these and other reasons outlined in Section 4.3.1 of this Record of Decision, the FRA and the Cooperating Agencies did not include the Downtown Station in the Preferred Alternative.
F-8	Alternatives	Dean Martin Rural Neighborhood Preserve Association	Utilizing the I-15 corridor would curtail long-term land development of the area and create blight.	The I-15 freeway is a long-established transportation corridor. The Project proposes adding a high-speed passenger rail to this existing transportation corridor. The presence of the freeway has established and determined development patterns in the metropolitan Las Vegas area and elsewhere. The Nevada Department of Transportation plans to expand the width of the freeway to up to 14 lanes in some portions of metropolitan Las Vegas. Previous expansions of the freeway have opened new areas to urbanizing development rather than create blight. The addition of high-speed passenger rail service into this corridor would not fundamentally change the transportation purpose of the corridor. The FRA finds no evidence to support the claim that blight would result with the addition of high-speed passenger rail service into the existing freeway corridor.
F-9	Alternatives	Marks	Ridership estimates are overstated. Our analysis concludes that people living in Las Vegas desiring to go to San Diego, CA; Los Angeles; San Fernando Valley; Arrowhead and Big Bear Resorts; the Reagan Library; Disneyland or southern parts of Ventura County would not be interested in taking a train to Victorville so that they could rent a car and drive to their selected destination. The larger the family the greater the probability that travel by vehicle would be less expensive than the Desert Express. Even more significantly, is that it is our understanding that the ridership estimate was provided by the same firm that estimated the ridership for the Las Vegas Monorail system which proved to be inaccurate.... the basic argument for building the system is that it will reduce traffic on Interstate 15 between Las Vegas and the metropolitan Los Angeles and Southern California areas as well as contribute to a reduction in accidents on the Interstate 15 corridor. Since you can not force ridership the assumption that traffic will be reduced significantly is flawed. People in the Western U. S. are very mobile and car oriented for recreational purposes. It well established that individuals or families utilizing air transportation rent vehicles at their destination as opposed to seeking public transportation. The exception being foreign citizens or people from heavily urban areas with extensive public transportation infrastructures.	Please see response to F-6. The Applicant has demonstrated (through the ridership study, which the FRA independently reviewed and verified) that there are logical reasons and reasonable expectations of ridership associated with a Victorville station.
F-10	Alternatives	Marks	The few minute difference between the EIS selected alternative terminus at Las Vegas (i.e., South of Flamingo Road and West of Interstate 15 would require extensive infrastructure adjustments that	Segment 6C, evaluated by the FRA and the Cooperating Agencies, would have used the Union Pacific Railroad corridor for new high-speed passenger rail tracks. However, as

Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
			Clark County can not afford. Such infrastructure improvements would involve road and bridge realignment; public parking; taxi; bus and public transportation staging areas. Alternative 6B with a downtown terminus, although slightly longer in travel time (literally 15 minutes) would utilize the existing Union Pacific right of way and terminate in an area which would benefit from redevelopment; has ample parking; public transportation and can easily meet other infrastructure requirements.	noted in Section 4.3 of this Record of Decision, the Union Pacific Railroad declined to allow the shared use of its land corridor, effectively resulting in an insurmountable land use conflict. Consequently, the FRA and the Cooperating Agencies could not have selected Segment 6C as part of the Preferred Alternative. Please see Section 4.3 of this Record of Decision for other factors considered by the FRA and the Cooperating Agencies in the selection of the Preferred Alternative for Segment 6.
F-11	Alternatives	Marks	It is our understanding that the Desert Express project is designated as privately funded. As such, the FRA acting on behalf of the Federal Government can only provide loan guarantees and limited grants were existing rail systems are upgraded. This raises several questions. The project is currently estimated at roughly \$ 6 Billion dollars. However, we are all painfully aware that this project like others of its kind (e.g., Washington Metro) will see estimated cost increase substantially before project completion. It is a certainty that additional funding will be required. If the Federal Railway Admin. under the DOT is unable to provide additional funding support for the project and the entrepreneurs who started the project cannot raise additional capital, who will be finish and operate the project? Will the public receive a form of "Quit Claim" and this elephant becomes a burden on the public it should never have had.	Please refer to Final EIS Section 1.5.1 for a discussion of the FRA's Railroad Rehabilitation and Improvement Financing Program (RRIF).
F-12	Alternatives	Marks	Since the loan guarantee from the FRA is federal money does it come with restrictions such as: Builder must use Union Labor; and all equipment must be purchased from U.S. companies and fabricated in America. The required use of Union Labor will certainly increase the estimated cost of build out. In addition, there is no passenger rail car company or light rail manufacturer in the U.S.; hence, all rail vehicles, parts and operating equipment will have to be acquired from a foreign source. This represents an outflow of U. S. funds without a corresponding inflow of funds. Such a situation represents a negative to the U. S. World Trade Deficit.	Please refer to Final EIS Section 1.5.1 for a discussion of the FRA's Railroad Rehabilitation and Improvement Financing Program (RRIF).
F-13	Alternatives	City of Barstow	Rather, a reasonable range of alternatives are those that can be carried out based on technical, economic, environmental, and other factors, and not only alternatives that are desirable to the applicant. In some cases, a lead agency may need to include alternatives that are outside the legal jurisdiction of the lead agency or even alternatives that require legislation. No true alternatives to the proposed Project were considered or analyzed in the FEIS, the Draft EIS or the Supplemental Draft EIS. The FEIS mentions only two other alternatives that were rejected, one along the Union Pacific Railroad ("UPRR") railroad alignment and the other involving much of the same route as the proposed action, but with a portion of the route through urbanized portions of the Las Vegas Valley. There are many other alternatives the FRA could have considered that would have satisfied the purpose to move traffic from Southern California to Las Vegas and the need to reduce traffic on the only route available, I -15, including constructing an additional highway, adding bus routes, and constructing rail lines in locations other than along the I-15 corridor. None of these options were considered (with the exception of the rejected alternative along the UPRR Railroad).	As documented in Final EIS Section 2.2, the FRA and the Cooperating agencies underwent a full alternatives analysis process to identify all reasonable alternatives that would meet the Project's Purpose and Need. .This section describes in detail the process considered in screening alternatives in light of the Purpose and Need identified for the Project (which is articulated in Final EIS Section 1.0). Construction of additional highway or additional bus routes would not satisfy the purpose and need of the Project which is to provide proven high-speed intercity passenger rail as an alternative to highway transportation options. In addition, Table F-2-5 within this section notes that various alignment segments following the UPRR Corridor were considered but rejected for various environmental and economic factors that made such segments infeasible. Please also see Final EIS Chapter 4 (Comments and Coordination), Table F-4-1, comment numbers 275 and 276, in which the Union Pacific Railroad expressed its opposition to the possible shared use of their right-of-way and trackways between Daggett, California and Las Vegas, Nevada. The FRA cannot compel the shared use of this privately-held right-of-way.
F-14	Alternatives	City of Barstow	Most egregiously, the EIS describes - but deliberately excludes from comparison with the proposed Project -- the maglev project. In other words, the FRA considers these two projects to be true alternatives to one another - they each satisfy the same purpose and need and the construction of one will obviate the need for the other. (Id.) NEPA requires that competing projects be analyzed in a single document, not ignored and considered in separate documents as if the other did not exist. Furthermore, as noted above in the City's comments on the EIS statement of purpose and need, the	Please refer to Final EIS Section 1.6.1, which discusses the California-Nevada Interstate Maglev Train proposal and its relationship to the DesertXpress project NEPA process. The FRA did respond to the comment submitted by the City of Barstow and specifically addressed the comments raised about purpose and need and comparison with the proposed maglev project; please see Final EIS Chapter 4, Table F-4-2, responses to comment S-56, S-271 and S-272.

Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
			<p>DesertXpress and maglev proposals are even more directly comparable than they were when the DEIS and SDEIS were circulated, since the FEIS discloses that the DesertXpress, like the maglev, may receive public financing...The City expressed great concern in its October 15, 2010 comment letter ("comment letter") that the DesertXpress EIS subverts the purpose of environmental review under NEPA by defining- or at least interpreting- its statement of purpose and need so narrowly as to artificially exclude any analysis of a viable, existing alternative with the potential to avoid adverse impacts on the City.</p> <p>This comment was not even addressed in the FRA's responses to comments in the FEIS (see Table F-4-2, Response to Comment No. S-56), nor was the document revised in any way to correct this significant deficiency. Interpreting the statement of purpose and need so narrowly as to exclude consideration of any "build" alternatives other than those proposed and privately financed by the Project applicant is a clear violation of NEPA. This error is particularly egregious and striking when there is an existing, feasible maglev alternative that could potentially reduce or avoid significant impacts of the Project.</p>	Please refer to Final EIS Section 1.5.1 for a discussion of the FRA's Railroad Rehabilitation and Improvement Financing Program (RRIF).
F-15	Alternatives	San Manuel Band of Mission Indians	The existing railroad right of way was discarded early on as an alternative. The alternatives evaluated in FEIS running in the I-15 corridor are really the same alternatives with minor deviations.	Please see the response to comment F-13 above.
F-16	Alternatives	EPA	We note that FRA is the lead federal agency for the proposed California-Nevada Interstate Maglev project as well as the DesertXpress project. Our comments on the DEIS had questioned how these two projects, both proposed for the same transportation corridor, would ultimately be compared in terms of fulfilling the purpose and need of providing passenger rail in the same corridor, while minimizing impacts. We continue to believe that FRA should provide a comparison of the potential costs, benefits, and environmental impacts of these two competing proposals so that decision-makers can clearly see a comparison of the potential costs, benefits, and environmental impacts of each technology....	Please refer to Final EIS Section 1.6.1, which discusses the California-Nevada Interstate Maglev Train proposal and its relationship to the DesertXpress project NEPA process.
F-17	Alternatives - Ridership	EPA	However we continue to have concerns about the fact that the ridership and market projections discussion included in the FEIS is based on the DesertXpress Updated Ridership and Revenue Study prepared in December 2005 and the DesertXpress Ridership Forecast Review prepared in February 2008, and does not consider the economic downturn of the past few years, as we recommended in our DEIS comments. FRA has stated that information they have received indicates that travel in this corridor has increased in recent years despite the economic downturn. However, in the absence of a more recent ridership study, EPA remains concerned about the FEIS conclusions.	The commenter alludes to highway vehicle count information compiled and published by the Las Vegas Convention and Visitors Association (LVCVA). The LVCVA tracks a variety of visitation-related data. The LVCVA obtained traffic counts from NDOT roadway sensor data on I-15 at the California/Nevada state line – an important indicator of the total vehicle traffic entering the state from southern California. For 9 of 12 months in 2010 and 3 of the 4 months between January 2011 and April 2011, the NDOT recorded a percentage increase in the number of vehicles entering Nevada over the same period 1 year prior. In other words, for 9 of 12 months in 2010, the number of cars entering Nevada from California increased over the same 9 months in 2009. Looking over entire year-long periods, average daily traffic levels entering Nevada at the California border decreased slightly between 2007 and 2008, but increased in 2009 and 2010, such that by year-end 2010, the average daily vehicle count returned to 2006 levels. The FRA believes that the conclusions of the ridership studies and ridership reviews completed between 2005 and 2009 remain essentially valid insofar as the cited data indicate that vehicle traffic entering Nevada from California has not substantially decreased due to the recession that began in 2007.

Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
				For further information, see Las Vegas Convention and Visitors Authority, Historical Las Vegas Visitor Statistics, 1970-2010. Updated February 25, 2011; Las Vegas Convention and Visitors Authority, 2011 Las Vegas Year-to-Date Executive Summary (January – April); 2010 Las Vegas Year-to-Date Executive Summary (January – December). Accessed June 9, 2011 at <a href="http://www.lvcva.com/press/statistics-facts/visitor-stats.jsp">http://www.lvcva.com/press/statistics-facts/visitor-stats.jsp</a>
F-18	Biological Resources	City of Barstow	The Biodiversity Guidance explains that NEPA documents cannot limit their analysis of biological impacts to an assessment of impacts on species protected under the Federal Endangered Species Act. Rather, adequate consideration of impacts on biological resources in NEPA documents includes an analysis of impacts on non-listed species, state protected species, areas that are important to biodiversity even though they may not have an official designation, ecosystem impacts and cumulative impacts.	Please refer to Draft EIS Section 3.14.2.2, which outlines the initial consultation process the FRA and its third-party consultants followed in scoping the biological resources evaluation for the Project. This consultation included both federal and local resource agencies; the analysis in the NEPA documents encompassed all species and habitat areas agreed to by the interested federal and state agencies. For example, the Mohave Ground Squirrel is not a federally listed species; nonetheless, a complete analysis of potential effects to this species was included in the EIS.
F-19	Biological Resources	City of Barstow	The project study area for biological impacts is the Project footprint. This was not changed in the FEIS despite the City's detailed comments explaining that this approach to the analysis of impacts on biological resources is wholly inadequate under NEPA. Limiting the area of evaluation to only those areas where the Project will be constructed reduces the assessment to a snapshot of impacts to individual animals or plants who are located there at the time of the work. There is no assessment of impacts on the ecosystem or on the biodiversity of the region. This myopic review does not provide an assessment of the impacts on biological resources and fails to comply with the mandates of NEPA.	The FRA disagrees that the Project's study area was limited to the Project footprint. Please refer to Draft EIS Section 3.14.4.2, which noted that a 400 foot wide limit of disturbance was evaluated for the biological resources evaluation. These parameters were established in early consultation meetings with federal and state resource agencies; please see Draft EIS Section 3.1.4.2.2 for more information. When built, the actual width of the rail corridor would typically be 60 feet; even narrower in limited locations. Therefore, the use of a 400-foot wide corridor to determine impacts was developed in consultation with the resource agencies as a conservative measure that would fully capture all direct and indirect effects of project construction and operation. The FRA's analysis examined the full limit of disturbance in considering possible impacts to biological resources.
F-20	Biological Resources	City of Barstow	The documents concede that essential information about various plant species was not obtained prior to the issuance of the DEIS (pp. 3.14-16 and 3.14-53), the SDEIS (p. 3.14-16) or the FEIS (p. 4-92, Table F-4-2, response to comments), due to the prolonged drought in the region. The FEIS and draft documents indicate that such surveys will be conducted prior to beginning construction on the Project. (Id.) Even if such studies are completed prior to breaking ground, the information obtained will only be available to mitigate impacts on site, it will not be available to inform the public or the decision-makers in assessing the environmental impacts of the different alternatives before the decision on the Project as mandated by NEPA.	Although a protocol level survey was not conducted within the immediate I-15 corridor due to drought conditions at the outset of the project's environmental review process (2006 and 2007), information on plants within the immediate I-15 corridor is very well documented; available resources formed an adequate basis for determinations regarding potential impacts to plants in this area. Please see Final EIS Section 3.14.2.1, page 3.14-17, for further discussion of this issue. Also see Final EIS Section 3.14.2.3, page 3.14-22, which notes that conducting preconstruction presence/absence surveys would provide the most robust and accurate data on vegetative resources.  A full botanical survey was conducted for Segment 4C, the only portion of the proposed rail alignment that substantially deviates from the I-15 corridor.
F-21	Biological Resources	City of Barstow	The FEIS and draft documents only provide a general, conclusory statement of the impact of the various alternatives on specific biological resources in terms of acreage, with no connection between the acreage affected and the population or individual animals/plants. The FEIS adds no new analysis, but instead concludes that the analysis in the draft documents is sufficient. None of the documents analyzes the loss of habitat, changes to habitat, loss of individuals, or other impacts on the local populations, the ecosystem or the biodiversity in the area despite the FRA's response to the City's comment indicating that such information has been provided. (FEIS, Table F-4-2, p. 4-92.)	Please see Final EIS Section 3.14.2.3, which provides detailed accounts of potential direct effects to investigated species as well as to related habitat areas.
F-22	Biological Resources	City of Barstow	Furthermore, there is no assessment of the impact on the multi-species habitat conservation plans that are within the Project impact area, or the preserves or special habitat areas other than	The Draft EIS, Supplemental Draft EIS, and Final EIS all considered the various habitat conservation plans that exist in the project area. These plans were identified in Section

Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
			conclusory statements that impacts will be minimal. The City made this comment to the SDEIS. In response, the FEIS now identifies various multi-species habitat conservation plans that are within the Project impact area, applicable regulations, and certain wildlife action plans, but there is still no assessment of the impact of the preferred alternative or any of the other alternatives on the biological resources in the impact area of the proposed Project or alternatives or on the ability of the identified plans to achieve their conservation goals in light of the potential impacts from this Project. The FEIS and draft documents contain no explanation of the scope of the impacts or how they relate the thresholds of significance.	3.14.1.2 and 3.14.1.3 of the Draft EIS. Species covered by applicable plans were assessed in all of the aforementioned environmental documents. In particular, Final EIS Section 3.14.2.3 identifies potential effects to the several reptile species covered under the Clark County Habitat Conservation Plan.
F-23	Biological Resources	City of Barstow	Finally, the City notes with disappointment that the UFWS Biological Opinion for the DesertXpress Project was not complete by the time of preparation of the FEIS, and is in fact not even expected to be submitted until April 30, 2011 -only two days before the close of comments on the FEIS. (FEIS, p. 1-10.) The absence of a final Biological Opinion undercuts the conclusions of the FEIR, and hampers public and agency review of the FEIS.	Although consultation under Section 7 of the Endangered Species Act and preparation of an environmental impact statement are separate processes, the FRA included as an appendix to the Final EIS the Biological Assessment submitted to the USFWS as part of the Section 7 consultation. NEPA does not require the completion of the Section 7 consultation prior to publication of a Final EIS. The Final EIS included a complete assessment of impacts. , Avoidance measures identified in the Biological Opinion are included in this Record of Decision, and do not conflict with the mitigation measures in the Final EIS.
F-24	Biological Resources	San Manuel Band of Mission Indians	To the Serrano peoples, the route of the DesertXpress is significant in that it follows, in part, the course of the Mojave River, an important part of the Serrano ancestral homeland. As planned, the DesertXpress, starts in Victorville where it crosses the Mojave River and cuts overland to Barstow where it again crosses the river and follows it eastward toward Baker.	The comment appears to state that trains associated with the Project would cross the Mojave River in Victorville. However, the Victorville Passenger Station and OMSF are a minimum of 5 miles from the Mojave River; the only rail crossing of the Mojave River would be in Barstow, immediately adjacent to where I-15 crosses the river.  The only project facility that would cross the Mojave River in Victorville is an electric utility corridor consisting of overhead power lines linking OMSF 2 to an existing substation near the Southern California Logistics Airport in Victorville. The utility line would span the river; no towers would be placed in the river. Given that the utility line crossing would occur near areas of industrial development and another railroad, the incremental effects of the project's utility corridor crossing the river were found to be minimal.
F-25	Biological Resources	EPA	We acknowledge FRA's plan to coordinate with wildlife agencies in the design and spacing of culverts and fencing, to ensure that appropriate wildlife crossings are available. FRA should commit to this coordination in the ROD to ensure appropriate design and location of wildlife crossings.	All mitigation measures identified in the Final EIS are incorporated as measures to minimize harm in this Record of Decision.
F-26	Cultural Resources	29 Palms	The Desert Xpress Final Environmental Impact Statement fails to adequately evaluate the nature and extent of cultural resources that will be impacted and fails to identify adverse impacts, mitigation and treatment measures to cultural and biological resources. The proposed project will cause significant adverse impacts to the big horn sheep and desert tortoise, animals that are considered a cultural resource to Native Americans.	The FRA disagrees with several assertions within this comment. The nature of impacts to cultural resources is fully described in Final EIS Section 3.7.2.3; biological resource impacts, including those to the cited species, are described in full within Final EIS Section 3.14.2.3. Cumulative impacts to cultural resources were fully assessed in the Final EIS (see page 3.16-28, Section 3.16.3.10). The Final EIS also fully assessed cumulative impacts to biological resources (Final EIS page 3.16-39, Section 3.16.3.17). In certain locations, particularly where the proposed rail alignment would deviate substantially from the developed I-15 freeway corridor in the Mountain Pass area, the combined effect of the Project and other projects in the vicinity would result in cumulative impacts under NEPA to desert tortoise and desert tortoise habitat, as well as to other sensitive species in this area, which include big horned sheep.



Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
F-27	Biology	NV Dept of Wildlife	The Department is pleased that the Project's Preferred Alternative does not deviate from the I-15 freeway and Union Pacific Railroad transportation right-of-ways described for segments 5A, 5B, 6A, and 6C (Clark County, Nevada). These Preferred Alternative segments pose the least adverse effects to Nevada's wildlife resources. However, as indicated in our comments to the Draft EIS, there is still potential for individuals of species (including State protected) coming into harm's way. Heightened attention to the banded Gila monster and burrowing owl along segments 5A and 5B would be appreciated as for all intents and purposes they would be associated with the desert tortoise as discussed in chapter section 3.14.2.3 <i>Preferred Alternative</i> on pages 3.14-23 through 3.14-30 and but not clearly reflected in the summaries in Tables F- 3.14-1 through F-3.14-3.	The comment is noted. Potential construction period effects to the cited species were noted in Final EIS 3.14.2.3 on pages 3.14-28 and 3.14-29. Mitigation Measure BIO-21 specifically addresses potential effects to burrowing owls. Final EIS Section 3.14.2.3 notes that there are no known occurrences of the banded gila monster in the vicinity of the Project; nonetheless, Mitigation Measure BIO-2 specifically provides for preconstruction surveys to detect the presence/absence of this species. The measure also provides a protocol in the event banded gila monsters are subsequently observed within work areas. In addition, several other mitigation measures are intended to protect multiple species during project construction and operation through protective fencing, construction worker training, ongoing construction period monitoring, and several other means – see Mitigation Measures BIO-1, the remainder of BIO-2, BIO-3, and BIO-5.
F-28	Comments/Coordination	Dean Martin Rural Neighborhood Preserve Association	Existing property/home owners within 500 feet of the "Preferred Alternative" route within the Dean Martin corridor were not properly notified.	Please see Section 4.2 of the Final EIS for a thorough discussion of the FRA's public involvement efforts for the project since project inception. Notice regarding the availability of environmental documents was sent to property owners of record within 500 feet of the project. The FRA updated its property owner mailing list immediately prior to the distribution of this notice and sent notices of Final EIS availability in March 2011 to all property owners within 500 feet of the Preferred Alternative rail alignment. In addition, as described in the notices of availability published in the Federal Register, copies of the EIS documents were sent to local libraries and were available for download on the FRA website.
F-29	Comments/Coordination	Marks	Upon contacting your local representative we were advised that selection from the various alternatives had been made and that the Final EIS was perfunctory in nature.	The Final EIS identifies the Preferred Alternative of the FRA and the Cooperating Agencies which was then made available for public review and comment. The FRA and the Cooperating Agencies will consider all comments received during the review period in making their decisions regarding the project. The agencies view this process as an important part of the NEPA review process.
F-30	Comments/Coordination	Marks	The process itself did not allow sufficient time for the public to respond since the average public was kept in the dark about specifics. More importantly, 2-3 hours for public testimony at Las Vegas seems rather limited without specific notification to affected areas such as Enterprise Township and Spring Valley Township.	Please see the response to comment F-28. The commenter appears to be referring to public hearings held on the Supplemental Draft EIS (October 2010) or the Draft EIS (April 2009). These meetings were extensively noticed, as noted in comment F-28. Everyone in attendance who completed a speaker request card was given the opportunity to provide oral comments to FRA staff present. The FRA also invited public comment by mail and email.
F-31	Comments/Coordination	San Manuel Band of Mission Indians	<p>The Federal Railroad Administration ("FRA") has not engaged in meaningful consultation with the Tribe... The Tribe made a request for completion of site record forms for historic properties and requested the opportunity to comment on historic property inventory reports as part of identifying cultural properties. Only a few consultation meetings were held, and only two in 2010 (January and September) requested by Tribal representatives.</p> <p>As indicated NEPA requires consultation with Tribes on impacts to the human environment, including relationship of people to the environment, cultural and social effects. NEPA requires consultation with Tribes about impacts to sacred sites. NEPA requires consultation on mitigation. This has not occurred.</p>	<p>As detailed in Final EIS Section 4.1.1 and Draft EIS Section 3.7.2.1, the FRA began outreach to Tribes as early as 2007 and continued consultation efforts through preparation of the EIS documents. Staff from the FRA traveled several times from Washington, DC to Southern California and Nevada for several government-to-government consultation meetings, which are described in more detail in Final EIS Section 4.1.1. In addition, the FRA's third-party contractors met with interested Tribes on numerous other occasions as documented in Final EIS Section 4.1.1. The FRA believes these and other outreach efforts yielded very meaningful consultation.</p> <p>With regard to the request for completion of site record forms, the FRA acceded to the cited request, preparing approximately 70 site records for prehistoric resources; the selection of these sites for recordation was done in consultation with the BLM and interested Tribes. These site records were sent to the tribes and BLM in August of 2010.</p>

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				With regard to sacred site, please see the response to comment F-34.
F-32	Comments/Coordination	29 Palms	The Federal Railroad Administration, the lead federal agency in the project, has failed to engage in meaningful government to government consultation with the affected Tribes on the issues described above. The unique government to government relationship with Tribes requires federal agencies including the FRA to obtain meaningful and timely input from tribes on matters that significantly or uniquely affect tribal communities.	Please see the response to comment F-31.
F-33	Cultural Resources	San Manuel Band of Mission Indians	The FEIS contains inadequate information as to the nature, significance and extent of the cultural resources and historic properties, as this evaluation has been impermissibly deferred. The preferred alternative contains 77 prehistoric sites and 17 that contain a mixed assemblage of pre-historic and historic sites...The required evaluation of these sites and assessment of short and long term adverse impacts, mitigation and treatment to cultural resources is impermissibly deferred until later per a programmatic agreement and will occur after project approval and public review...The Final EIS does not adequately evaluate the affected cultural environment...The Final EIS does not adequately analyze the cultural impacts of the preferred project alternative because there is a lack of information on the significance of the cultural resources to the Tribe and the other affected tribes.	<p>As described in Section 3.7.2 of the Final EIS, the Project is utilizing a Programmatic Agreement (PA) approach in fulfillment of requirements under Section 106 of the National Historic Preservation Act. This approach was developed for the project in consultation with the federal Cooperating Agencies, the California and Nevada State Historic Preservation Officers (SHPOs), and the Advisory Council on Historic Properties (ACHP). The Final EIS included a fully executed copy of the PA.</p> <p>All Tribes with whom the FRA has consulted on the Project were invited to comment on multiple drafts of the PA and were similarly invited to sign the PA as concurring parties. FRA and the Cooperating Agencies gave due consideration to the comments on the PA submitted by the Tribes. However, only one Tribe, the Las Vegas Paiute, opted to sign. Nevertheless, signing the PA is not a condition to future participation in the assessment of cultural resources.</p> <p>The PA for the Project defines a phased approach that permits all formal eligibility determinations to be made after the Preferred Alternative is identified and ratified by the Lead and Cooperating Agencies via Records of Decision on the proposed action. Eligibility determinations will be made by the appropriate agency (in this region, either the BLM or a SHPO), based on information presented in completed state-appropriate site records forms. This approach is consistent with 36 CFR 800.4(b)(2). The terms of the PA also require preparation of a Historic Properties Treatment Plan (HPTP) and a NAGPRA Plan of Action based on findings from the evaluation and assessment process.</p> <p>Notwithstanding, the FRA, through its formal government-to-government consultation as well as through other informational consultation, has advised all Tribes of the extensive efforts that were made to identify and assess cultural resources in the preparation of the Draft EIS, Supplemental Draft EIS, and Final EIS. These efforts included literature searches and pedestrian surveys that identified a total of 254 cultural sites within the Area of Potential Effect (APE) for the Preferred Alternative. In addition, despite the terms of the PA allowing for a phased evaluation of resources, the FRA prepared site records for 70 prehistoric resources identified by the FRA, the BLM, and certain participating Tribes as being of the most critical concern. These efforts collectively provided the FRA and the Cooperating Agencies with ample information regarding the affected environment of the Project in terms of cultural resources; these efforts formed a more than adequate basis upon which the FRA developed the PA for the Project.</p> <p>When it authorized cultural fieldwork to proceed on lands under its control, the BLM stipulated that project archaeologists are ultimately required to prepare site records for</p>

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				all cultural resources identified in the APE for the Project as a whole, not merely the APE for the Preferred Alternative.
F-34	Cultural Resources	San Manuel Band of Mission Indians	There is no information presented on potential Traditional Cultural Properties, Traditional Cultural Landscapes, religious or ceremonial sites. Site record forms for identified historic properties in the Project have not been completed and a historic properties inventory Report or Determination of eligibility has not been completed.	<p>As detailed in Draft EIS Section 3.7.2.1, a preliminary step in the cultural resources investigation for the project involved a search for sacred lands with the California Native American Heritage Commission (NAHC), which maintains a database of this information. The NAHC advised that there were no records of any Native American sacred sites within or adjacent to the APE. The NAHC also provided a list of Native American Tribal representatives it recommended be consulted for more information regarding the possibility of such traditional use areas. In March 2007, the FRA commenced consultation efforts with these identified Tribes via letter, specifically requesting any information regarding the possibility of traditional use or sacred sites in or near the Project area. As documented in Draft EIS Section 3.7.2.1, the FRA continued outreach to identified Tribes via telephone and in some cases, through face-to-face meetings in 2008.</p> <p>During 2009 and 2010 (and ongoing into 2011) the FRA conducted extensive formal and informal consultation with several interested Tribes as documented in Final EIS Section 4.1.1. On multiple occasions, including during field site visits with the Tribes, the FRA and/or its third party contractors asked Tribes for input on any resources of important, including traditional use areas. These consultations contributed to the consideration of additional avoidance alternatives as well as the terms of the Programmatic Agreement, including the outlines for the Historic Properties Treatment Plan and the NAGPRA Plan of Action. However, none of the above efforts led to the identification of any formally recognized traditional cultural properties. According to the BLM, whose local field office archaeologists have advised FRA closely throughout all phases of the cultural resources evaluation for the Project, a site must meet several preconditions in order to meet the federal definition of “traditional cultural property” as articulated in National Register Bulletin 38. These conditions include the ongoing use of the site in spiritual practice or other traditional activities. The BLM is unaware that any of the cultural resources investigated within or adjacent to the APE for the Project meet the qualifications to be recognized as traditional cultural properties.</p>
F-35	Cultural Resources	San Manuel Band of Mission Indians	The pedestrian surveys and site records do not identify subsurface resources, which is an important component to inadvertent discoveries that are not always visible.	The PA for the Project recognizes that subsurface resources may be identified and accordingly, provides extensive requirements regarding such an event. Foremost in these requirements is the stipulation that Native American monitors designated by the Consulting Tribes are to be present during all ground-disturbing activities. In addition, the PA requires training of all construction personnel in the appropriate actions to take if possible cultural resources are identified during construction activities.
F-36	Cultural Resources	San Manuel Band of Mission Indians	NEPA 's implementing regulations provide: "if the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." 40 C.F.R. ISO 1.1. There is currently insufficient information in the FEIS for the Tribe to determine the extent of impacts and meaningfully consult on mitigation measures.	As detailed above in the response to comment F-34, the FRA developed extensive information upon which to complete the environmental review for the Project. The PA for the Project defines a phased approach that permits all formal eligibility determinations to be made after the Preferred Alternative is identified and ratified by the Lead and Cooperating Agencies via Records of Decision on the proposed action. Eligibility determinations will be made by the appropriate agency (in this region, either the BLM or a SHPO), based on information presented in completed state-appropriate site records forms. This approach is consistent with 36 CFR 800.4(b)(2). The terms of the PA also

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				require preparation of a Historic Properties Treatment Plan (HPTP) and a NAGPRA Plan of Action based on findings from the evaluation and assessment process.
F-37	Cultural Resources	San Manuel Band of Mission Indians	The Tribe advised the lead agency of the necessity to consult with traditional practitioners and elders that have knowledge of cultural places, landscapes, including trails, traditional gathering and ceremonial sites that may be impacted and necessity to withhold sensitive information from public disclosure. The full extent of existing cultural resources is not yet known; as this information has not yet been fully developed. The full extent of project effects and impact on the cultural environment cannot be determined at this time.	<p>Regarding traditional use properties, please see the response to comment F-34 above. Through the evaluation and consultation efforts to date, the FRA has not identified any traditional cultural properties. In addition, the BLM is unaware of the presence of any such properties in the APE for the Project.</p> <p>Notwithstanding, the terms of the PA allow for and foster ongoing consultation and communication between the FRA, the Tribes, and the Project Applicant. While the FRA disagrees with the assertion that there is insufficient information on cultural resources to complete the NEPA process for the Project, the FRA will continue to exercise its obligations to engage in government-to-government consultation and hopes the Tribes also coordination with the Applicant who will be largely responsible for design as the Project moves forward. FRA staff travelled to meet with tribal representatives for face-to-face consultation in June 2011, between the publication of the FEIS and the publication of this ROD. In these meetings, Tribal representatives were able to discuss their concerns with FRA and meet with the Project Applicant.</p>
F-38	Cultural Resources	29 Palms	The route of the DesertXpress contains 77 prehistoric sites and 17 that contain a mixed assemblage of prehistoric and historic sites. In addition to these archaeological sites, the project preferred alternative and other alternatives, have, yet to be fully determined, significant adverse impacts to Traditional Cultural Properties of significance to Native Americans. These include but are not necessarily limited to the area of the Halloran rock landscape, nearby pre-historic quarries, Mojave River habitation landscape, Cronise Lake habitation sites, Mojave trail, Chemehuevi Salt Song trial, Serrano traditional trials, Mohave Song Story Trails and other pre-historic trails.	Please see the responses to comments F-34 and F-36.
F-39	Cumulative Impacts	San Manuel Band of Mission Indians	There are cumulatively significant cultural and biological impacts that have not been fully assessed. The FEIS fails to adequately consider the cumulative effect on cultural resources and animal and plant habitat of the desert. There are cumulatively significant biological impacts to animals in the project area that have important values to Native Americans. For example cumulative impacts to big horn sheep and desert tortoise, animals considered a cultural resource by Native Americans. Habitat will be further fragmented and loss of connectivity will threaten the tortoise, the big horn sheep and other species. Of particular concern are the cumulative effects of renewable energy projects within the geographic scope of the Ivanpah valley which contains of desert tortoise and big horn sheep habitat. The FEIS fails to provide an adequate analysis of how these related projects, in conjunction with the proposed action, are thought to have impacted or are expected to impact the environment and how this will be mitigated to an acceptable level. The acreages and the intent of the identified related projects are given, but actual cumulative impacts of these projects are not analyzed with specificity. While mitigation would reduce impacts to these biological resources, the Preferred Alternative when viewed collectively with Native American interest in habitat maintenance, will have an unacceptable adverse effect on biological and thus cultural resources.	Cumulative impacts to cultural resources were fully assessed in the Final EIS (see page 3.16-28, Section 3.16.3.10). The Final EIS also fully assessed cumulative impacts to biological resources (Final EIS page 3.16-39, Section 3.16.3.17). As detailed in Final EIS Section 3.16.3.17, in certain locations, particularly where the proposed rail alignment would deviate substantially from the developed I-15 freeway corridor in the Mountain Pass area, the combined effect of the Project and other projects in the vicinity would result in cumulative impacts under NEPA to desert tortoise and desert tortoise habitat, as well as to other sensitive species in this area, which include big horned sheep. In addition, several mitigation measures are intended to protect multiple species during project construction and operation through protective fencing, construction worker training, ongoing construction period monitoring, and several other means – see Mitigation Measures BIO-1, the remainder of BIO-2, BIO-3, and BIO-5. Final EIS Section 3.14.3 identifies the extensive mitigation measures to avoid or lessen impacts to all biological resources evaluated.
F-40	Environmental Justice	EPA	The FEIS also states that residents adjacent to the Preferred Alternative are already exposed to substantial transportation infrastructure and associated environmental impacts, and therefore the project would not introduce substantial new effects to the environmental justice communities.	Please see the response to comment F-2.

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			Additional impacts to already burdened communities is likely to be significant and must be considered and mitigated. For example, the FEIS states that residents in the vicinity of the proposed Las Vegas Central Station B are within 300 feet of the proposed station location, are already exposed to noise and air quality impacts from the I-15 freeway, and could be exposed to air quality, traffic, and noise impacts associated with the proposed station. Commitments to mitigate these impacts should be included in the ROD.	
F-41	General	NV Dept of Wildlife	Again, of the Project action alternatives described, the Department is supportive of the Preferred Alternative.	The comment is noted.
F-42	Growth	City of Barstow	<p>The FEIS concludes that the economic impacts identified in the Husing Report will not result in a significant impact under NEPA. The FEIS bases this determination on the statement that the adverse economic impacts identified in the Husing Report "are not at a level that would result in secondary physical environmental effects." (FEIS, p.3.2-14.) As noted above, NEPA requires an EIS to analyze whether adverse economic impacts will result in significant physical changes to the environment (often identified as "urban decay"). (City of Rochester v. United States Postal Service, supra. 541 F.2d 967.) However, the FEIS provides absolutely no reasoned explanation for its conclusion that the adverse economic impacts identified in the Husing Report will not result in secondary physical effects.</p> <p>The Husing report simply fails to evaluate the effect of a semi-permanent economic downturn on the urban fabric of Barstow. Because of this shortcoming in the Husing Report, the FEIS lacks any factual or analytical basis upon which to rest its conclusion that the DesertXpress will not produce significant urban decay in Barstow.</p>	Please see <b>Appendix B</b> of this Record of Decision for a detailed review of several assertions raised by the City of Barstow regarding the potential economic impact of the DesertXpress. In its initial economic study (Final EIS <b>Appendix F-E</b> ), FRA's economist considered the possibility of urban decay but concluded that while there would be some negative economic impact, such impacts would not result in urban decay. For further information regarding FRA's finding that the Project will not result in urban decay, please refer to In Appendix B.
F-43	Growth	City of Barstow	No other projects are discussed with regard to negative growth impacts and the overall conclusion focuses solely on the temporary beneficial construction impacts to reach a false conclusion that Barstow will only experience growth benefits from the preferred alternative. The report by Dr. Barbieri, attached to this letter, explains that numerous other developments may contribute, along with the DesertXpress Project, to cumulative growth impacts on the City of Barstow. The FEIS fails to discuss any of those other projects, and therefore its treatment of cumulative growth impacts is entirely inadequate under NEPA.	The cited report by Ronald Barbieri includes discussion of several projects contemplated for the City of Barstow that could have positive growth impacts – including a potential casino and a potential Walmart distribution center. These projects are cited to have the potential to increase jobs and economic activity generally within greater Barstow. As part of the cumulative impact analysis, including cumulative growth impacts, FRA considered reasonably foreseeable projects. See FEIS Section 3.16.
F-44	Growth	EPA	While the area surrounding the preferred station site in Victorville may be planned for growth, the DesertXpress project would undoubtedly impact the timing and potentially the form of that growth. In addition, since the chosen station site (VV3) is the site alternative that is located further from existing development than either of the other station site alternatives, growth-related impacts would likely be greater than with the other station sites. Mitigation measures, such as commitments to work with local land use planning authorities to implement land use controls in the station area and surrounding areas, should be included in the ROD. The ROD should also include references to the transit-oriented principles that FRA has developed as part of the California High Speed Train system.	<p>The Applicant selected possible station site locations in Victorville in consultation with officials of that City. In comments on the Supplemental Draft EIS, which included analysis of the VV3 (A&amp;B) station sites, officials of the City of Victorville endorsed the project. In Final EIS Chapter 3.2 (Growth), Table F-3.2-4 notes that all of the Victorville Station sites would have the beneficial effect of catalyzing transit-oriented development growth around the station areas. The City of Victorville believes the project could foster planned growth in the station and OMSF area.</p> <p>While the Applicant has committed to a voluntary mitigation measure to encourage transit-oriented development, the FRA does not find the California High-Speed Rail Authority's Urban Design Guidelines referenced by the EPA directly applicable to this privately-sponsored project with its distinct purpose and need.</p>
F-45	Hazardous Materials	DTSC	The EIS should evaluate whether conditions within the Project area may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:	The analysis included a thorough review of the federal, state, and local databases identified in this comment. Please see Sections 3.10.1 and 3.10.2 of the Draft EIS.

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			<ul style="list-style-type: none"> <li>National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S. EPA).</li> <li>Envirostor (formerly CaiSites): A Database primarily used by the California Department of Toxic Substances Control, accessible through DTSC's website (see below).</li> <li>Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA.</li> <li>Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S. EPA.</li> <li>Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations.</li> <li>GeoTracker: A List that is maintained by Regional Water Quality Control Boards.</li> <li>Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks.</li> <li>The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).</li> </ul>	
F-46	Hazardous Materials	DTSC	The EA should identify the mechanism to initiate any required investigation and/or remediation for any site within the proposed Project area that may be contaminated, and the government agency to provide appropriate regulatory oversight. If necessary, DTSC would require an oversight agreement in order to review such documents.	Final EIS Mitigation Measure HAZ-2 requires the Applicant to prepare a soil-monitoring plan prior to the issuance of building permits for demolition, grading, or construction. If the monitoring procedures indicate the possible presence of contaminated soil, a contaminated soil contingency plan shall be implemented that shall include procedures for segregation, sampling, and chemical analysis of soil. Where contaminated groundwater is encountered, the Applicant shall obtain a NPDES permit prior to the issuance of a permit to construct. The NPDES permit shall specify site-specific testing and monitoring requirements and discharge limitations.
F-47	Hazardous Materials	DTSC	Any environmental investigations, sampling and/or remediation for a site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All sampling results in which hazardous substances were found above regulatory standards should be clearly summarized in a table. All closure, certification or remediation approval reports by regulatory agencies should be included in the EIS.....If the site was used for agricultural, livestock or related activities, on site soils and groundwater might contain pesticides, agricultural chemical, organic waste or other related residue. Proper investigation, and remedial actions, if necessary, should be conducted under the oversight of and approved by a government agency at the site prior to construction of the project.	Phase I Environmental Site Assessments were completed for all lands underlying all project alternatives contemplated within the Draft and Supplemental Draft EIS documents. These assessments are presented as Final EIS Appendix F-K.1; information from them was summarized in all of the NEPA documents for the Project.
F-48	Hazardous Materials	DTSC	If buildings, other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs are identified, proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies.	Final EIS Mitigation Measure HAZ-1 requires the Applicant to conduct an evaluation of all buildings to be demolished to determine the presence of asbestos containing materials and lead based paint, prior to the start of construction activities. Remediation shall be implemented in accordance with the recommendations of these evaluations.
F-49	Hazardous Materials	DTSC	Future project construction may require soil excavation or filling in certain areas. Sampling may be required. If soil is contaminated, it must be properly disposed and not simply placed in another location onsite. Land Disposal Restrictions (LDRs) may be applicable to such soils. Also, if the project proposes to import soil to backfill the areas excavated, sampling should be conducted to ensure	Please see responses to comments F-45 through F-48. Final EIS Mitigation Measure HAZ-2 requires the Applicant to prepare a soil-monitoring plan prior to the issuance of building permits for demolition, grading, or construction. This includes construction activities related to the import of any off-site soils.

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			that the imported soil is free of contamination.	
F-50	Hazardous Materials	DTSC	Human health and the environment of sensitive receptors should be protected during any construction or demolition activities. If necessary, a health risk assessment overseen and approved by the appropriate government agency should be conducted by a qualified health risk assessor to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment.	Mitigation included in the Final EIS addresses these concerns. Please see Final EIS Mitigation Measures HAZ-1 through HAZ-4.
F-51	Hazardous Materials	DTSC	If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUP A.	Final EIS Mitigation Measure HAZ-5 requires the Applicant to prepare a Hazardous Materials Management Plan for all facilities that use, store, or dispose of hazardous materials. Facilities emitting toxic air emissions shall submit inventories and plans to the appropriate air quality management district and be subject to permitting and monitoring regulations of the district. The Applicant shall obtain all applicable local, state and Federal permits for the installation and operation of any above or below ground chemical or fuel storage tanks prior to installing such tanks.
F-52	Hydrology	EPA	EPA strongly encourages FRA to include avoidance, minimization, and mitigation measures, which will be required in order to receive a CWA Section 404 permit, in the ROD. EPA understands that the USACE will be issuing Nationwide Permits for the project. If this is the case, an alternatives analysis and demonstration that the preferred alternative is the least environmentally damaging practicable alternative (LEDPA), as discussed in our DEIS comments, is not required. However, avoidance and minimization measures are required, and these should be included as commitments in the ROD. While the Project applicant will be obtaining the CWA Section 404 permit, FRA should include mitigation commitments in the ROD.	The FRA will include all mitigation noted in the Final EIS as commitments. Please see Section 8.0 of this Record of Decision. The process to obtain the CWA Section 404 permit has been ongoing. In July 2010, the Applicant submitted jurisdictional delineation reports to the USACE; a field verification visit was conducted in December 2010. In May 2011, the Applicant submitted its applications for Section 401 and 404 permits to the USACE and the applicable regional water quality control boards.
F-53	Hydrology	EPA	As stated in our DEIS comments, we strongly encourage FRA to commit to the use of natural washes, in their present location and natural form, to the maximum extent practicable with the placement of adequate natural buffers for flood control. We also encourage FRA to improve obstructed natural flows where practicable during project construction.	For most of the Project alignment the rail line will follow the I-15 freeway corridor. When immediately adjacent to the freeway, the project would mimic and extend the existing drainage facilities that exist under the I-15 freeway. This approach would minimize impacts to drainages and not obstruct surface water flows. In areas where the rail line would deviate substantially from the I-15 freeway (primarily Segment 4C near Ivanpah), the Project would include bridge and culverts appropriately sized to minimize impacts to natural drainage flows. The USFWS in its Biological Opinion included measures specifically intended to reduce potential hydrological impacts of Segment 4C on downstream habitats.
F-54	Hydrology	EPA	The FEIS also states that VV3 requires a larger footprint than the other two station options because VV3 emphasizes surface parking areas instead of structured parking. EPA is concerned about the impact of this facility on hydrology, water quality, and other resources. FRA's decision to construct surface parking instead of structured parking will result in higher storm water runoff and potential impacts to water quality than either of the other station options. EPA strongly encourages FRA to reconsider a smaller footprint, elevated parking structure and to commit to reduced impacts and aggressive best management practices (BMPs) to control and treat stormwater during construction and operation of the facility, and monitoring to ensure effectiveness of the BMPs. Commitment to less impacting design and BMPs should be included in the ROD.	Final EIS Section 3.8.4 acknowledges that the Preferred Alternative would result in both construction and operational period effects to water resources, including those cited by the commenter. The FRA weighed the tradeoffs between the different station alternatives, recognizing that certain station options had impacts that others did not. Section 4.0 of this Record of Decision reiterates the basis for this decision-making. In addition to all mitigation measures included within this Record of Decision (Appendix A), construction and operation of the project will be further subject to all conditions of permits under Section 401 and 404 of the Clean Water Act. Such conditions would be required to be incorporated into design-build plans for the project. Please see the response to comment F-52 regarding the status of these permit applications.
F-55	Land Use	Dean Martin	The "Preferred Alternative" route would jeopardize the rural lifestyle of the adjoining homes and	The I-15 freeway is a long-established transportation corridor. The Project proposes

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		Rural Neighborhood Preserve Association	connecting preservation area. The high-speed train will diminish the viability of the area for future home development.	adding a high-speed passenger rail line within this existing transportation corridor in the metropolitan Las Vegas area (the commenter's apparent area of concern). The presence of the freeway, among other factors, has established and determined development patterns in the metropolitan Las Vegas area and elsewhere. The Nevada Department of Transportation plans to expand the width of the freeway to up to 14 lanes in some portions of metropolitan Las Vegas. The addition of high-speed passenger rail service into this corridor would not fundamentally change the transportation purpose of the corridor and would thus not introduce a new type of land use compatibility concern.
F-56	Land Use	Dean Martin Rural Neighborhood Preserve Association	The FEIS general assumption on industrial land use does not consider actual Clark County land uses. The maintenance facility at [Wigwam] does not conform to current Clark County land uses. The facility is a heavy industrial use, which is not permitted in its current proposed location and will have a severe impact on the surrounding area. Currently, the only area in Enterprise with the appropriate zoning is the Arden industrial area adjacent to the Union Pacific right of way.	The comment is noted, but the FRA does not agree that the proposed Wigwam Avenue facility is a heavy industrial use. Notwithstanding, please refer to Final EIS Section 1.4.1.2, which describes the how the June 2007 declaratory order of the Surface Transportation Board exempts the Project from state and local environmental review, state and local land use laws, and state and local permitting requirements.
F-57	Land Use	Marks	Some areas of the selected route in Clark County NV are listed as Industrial when in fact they are Business Development, Professional and Research.	The general comment is noted but the commenter does not provide specifics. Notably, the actual route of the Preferred Alternative rail alignment within Clark County lies entirely within the I-15 freeway right-of-way or the Dean Martin Drive right-of-way.
F-58	Land Use	City of Barstow	The Land Use Chapter (3.1) contains statements and conclusions that the proposed Project has low and moderate compatibility with certain land uses along the route such as residential areas and sensitive BLM lands with a very cursory statement regarding the basis for the incompatibility. There are also no conclusions regarding the land use impacts after mitigation despite the response to comment No. S-238 indicating that conclusions regarding land use impacts after mitigation are presented in FEIS Section 3.1.4. Section 3.1.4 simply states that incorporation of the mitigation measures will mitigate permanent effects relating to Project construction and operation and that the Preferred Alternative will result in the conversion of lands to transportation uses. (FEIS, p. 3.1-43.) Neither of these statements provides any conclusion regarding the significance of impacts from the Project as required by NEPA.	Please see Final EIS Section 3.1.3, which indicates which types of land use effects would occur with the Preferred Alternative, including identification of appropriate mitigation for significant adverse effects.
F-59	Land Use	City of Barstow	The FRA's response to comments by the City of Barstow and adjacent areas that the information on land use policies in the draft documents was grossly out of date indicates that this information was updated in the FEIS. (Response to Comment No. 334.) However, a review of the FEIS shows only very minor revisions were made to Section 3.1.1.1 and no citations to recent data were added to show that the information is actually current. Despite this fact, the FEIS changes a few terms, but otherwise does not appear to have addressed this issue, calling into question the adequacy of the land use analysis in the FEIS pertaining to the City and surrounding areas.	Final EIS Section 3.1.1.1 reflects extensive revisions regarding land use policies of the City of Barstow relative to Segment 2A/2B. These revisions are noted on Final EIS page 3.1-2. Revised figures to reflect these updates were also provided in the Final EIS; see Figures F-3.1-1 and F-3.1-2. These revisions fully address the scope of issues identified in Draft EIS comment 334.  As described in Final EIS Section 2.4.1, Segment 2A/2B was not included in the Preferred Alternative.
F-60	Land Use	CCDOA	In its comments on the DEIS, CCDOA pointed out that the preferred alignment for Segment 5 penetrated both the southern and northern runway protection zones (RPZs) for the western-most runway at the SNSA. The revised alignment subsequently described in the SDEIS appears to avoid any intrusions into the southern RPZ by remaining on the west side of I-15 at that point. However, because the proposed alignment of the DesertXpress subsequently crosses back to the east side of I-15, it still intrudes into the northern RPZ for the western-most runway at the SNSA. CCDOA noted this in its comments on the SDEIS and renewed its objection to any proposal that would result in any part of the DesertXpress infrastructure being located in an RPZ.  This conflict was not resolved in the FEIS. The preferred alignment for Segment 5 in the FEIS still intrudes into the northern RPZ. In response to CCDOA's comments on the SDEIS concerning this	Please see <b>Appendix A</b> to this Record of Decision in which Mitigation Measure LU-2 has been revised to reflect revisions proposed to the FRA by the Federal Aviation Administration.



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			intrusion, FRA added Mitigation Measure LU-2: Rail Alignment Design in Existing and Planned Runway Protection Zones. This mitigation measure requires the Applicant to "coordinate with the FAA during the design-build process regarding any existing and planned airport uses and established Runway Protection Zones." It also requires the Applicant obtain a determination from the FAA that "the project does not present a hazard to air navigation" under Part 77. See FEIS at 3.1-42 and 4-103 (response to CommentS-126).	
F-61	Land Use	CCDOA	CCDOA renews its objection to the proposed alignment of Segment 5. Intrusion of physical objects into the RPZ is a critical safety issue. Accordingly, we cannot agree that proposed mitigation measure LU-2 provides adequate safeguards for the northern RPZ at the SNSA. As we have noted before, given the configuration of the western SNSA runway and the NDOT right-of-way for I-15, avoidance of the RPZ is best achieved by using an alignment that remains on the west side of I-15 until it has passed the northern RPZ. We have consulted with Mr. David Kessler, the Federal Aviation Administration (FAA) Project Manager for the SNSA Environmental Impact Statement, and he agrees that the preferred alignment for Segment 5 unacceptably interferes with FAA's safety requirements for RPZs, and that an alignment that stays on the west side of the I-15 right-of-way would adequately protect the RPZ.	Please see <b>Appendix A</b> to this Record of Decision in which Mitigation Measure LU-2 has been revised to reflect revisions proposed to the FRA by the Federal Aviation Administration.
F-62	Land Use	CCDOA	As we explained in our October 2010 comments on the SDEIS, the project's impacts on aviation safety cannot adequately be examined without considering the results of FAA's Part 77 analysis and any mitigation measures such as lighting and marking required by FAA in any subsequent determinations. There is no discussion of the Part 77 determinations in the FEIS; only a requirement that the Applicant obtain a Part 77 determination that "the project" does not present a hazard to air navigation. Thus, FRA's FEIS still lacks a full examination of the potential aviation hazards for each alternative. FRA's response to CCDOA's comment does not address the lack of analysis in the FEIS. It merely cites Mitigation Measure LU-1, which addresses only impacts to one-engine inoperative (OEI) surfaces; and Mitigation Measure LU-2, which requires the Applicant to obtain Part 77 determinations from the FAA. See Comment S-122 and Response at FEIS p. 4-102.	Please see <b>Appendix A</b> to this Record of Decision in which Mitigation Measure LU-2 has been revised to reflect revisions proposed to the FRA by the Federal Aviation Administration.
F-63	Land Use - Aviation	FAA	FAA recommends the FRA's Final EIS and Record of Decision include a reference to 49 U.S.C. 47101 that states in part: <i>" ... it is the policy of the United States that the safe operation of the airport and airway system is the highest aviation priority ... "</i>	The comment is noted.
F-64	Land Use - Aviation	FAA	The FAA recommends DesertXpress reduce the height of the proposed rail line, including the overhead catenary, below the 62.5:1 OIS for departure ends Runways of 25L and 25R at LAS. FAA strongly recommends FRA consider an alternative that has the proposed rail line pass under the Union Pacific Rail Road similar to how Interstate 15 passes under the railroad. The FAA encourages the FRA to work with DesertXpress to adjust the alignment of the proposed rail project to ensure it does not adversely affect the safe and efficient use of navigable airspace at LAS. Until the FAA has completed a detailed review of the proposal, under 14 CFR Part 77, the FEIS is premature in making a statement that a no-hazard determination is available.	Please see <b>Appendix A</b> to this Record of Decision in which Mitigation Measure LU-1 has been revised to reflect revisions proposed to the FRA by the Federal Aviation Administration.
F-65	Land Use – Aviation	FAA	The proposed alignment of the DesertXpress along the eastern edge of the Interstate 15 Right-of-Way causes the train to penetrate the RPZ for Runway 18R/36L at the proposed SNSA. This penetration of the RPZ is not acceptable to the FAA because it is a land use that is inconsistent with Paragraph 212 of FAA Advisory Circular 150/5300-13, <i>Airport Design</i> . FAA views a passenger train in an RPZ as a prohibited land use. The function of the RPZ is to protect people and property on the ground. We believe the FRA would agree the safety of both aircraft and rail passengers is of the utmost importance.	Please see <b>Appendix A</b> to this Record of Decision in which Mitigation Measure LU-2 has been revised to reflect revisions proposed to the FRA by the Federal Aviation Administration.

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			The RPZ for the proposed SNSA extends over a portion of the Interstate 15 highway pavement. However, we cannot accept introduction of a new land use that could pose a hazard to air navigation. An at-grade railroad with overhead power lines would be inconsistent with the FAA's Airport Design Standards. Mitigation Measure LU-2, shown on page 3.1-42 of the Final EIS is not acceptable to the FAA because it does not relocate the proposed rail alignment outside of the RPZ.	
F-66	Land Use – Aviation	Dean Martin Rural Neighborhood Preserve Association	Any above grade track section that impairs runway capacity ability at McCarran International Airport must have a design solution before the project is approved. Reduced runway capacity will influence air carriers' decisions on the service levels to McCarran. Runway impairment can result in serious economic impact to the entire Las Vegas valley.	Please see <b>Appendix A</b> to this Record of Decision in which Mitigation Measure LU-1 has been revised to reflect revisions proposed to the FRA by the Federal Aviation Administration.
F-67	Land Use – Aviation	Marks	Although discussed in the EIS, it would appear that there is a conflict between aircraft safety in an emergency single engine take-off. It is our understanding that a part of the selected alternative would require elevated tracks that are in or adjacent to active runways. This is one of many reasons that building height is restricted in the aircraft zones that the selected alternative will traverse. Under these circumstances Airlines will have to limit passenger, fuel and baggage on departing aircraft to comply with the engine failure rules. The net effect will be a decline in airline traffic at the Las Vegas airport.	Please see <b>Appendix A</b> to this Record of Decision in which Mitigation Measure LU-1 has been revised to reflect revisions proposed to the FRA by the Federal Aviation Administration.
F-68	Land Use - Aviation	FAA	We believe the FEIS fails to consider the 62.5: 1 Obstacle Identification Surface (OIS) by the proposed rail alignment as it relates to Runways 25L and 25R at LAS. This rule requires commercial operators of large or turbine-powered airplanes departing an airport under IFR to have a procedure for avoiding obstacles in the event of an engine failure on takeoff.	Please see <b>Appendix A</b> to this Record of Decision in which Mitigation Measure LU-1 has been revised to reflect revisions proposed to the FRA by the Federal Aviation Administration.
F-69	Miscellaneous	Marks	No mention was made of the illegal immigration problem and the ability of ICE to carry out its mission. The intended rail system provides a significant opportunity for illegal immigrants to move East and North in the U.S. This exacerbates the problem of control. Even if you could add ICE personnel the cost would be prohibitive. Security at points of ingress and egress will be required to ensure that no possible terrorist activity can take place. If each train carries 250-300 passengers' means at maximum use there would be 600 potential terrorists Victims at both the Victorville and Las Vegas terminals. Security, such as that used at airports, would require an area large enough to screen people, baggage and equipment prior to departure.	<p>The FRA is uncertain how the proposed high-speed passenger rail system would in any way interfere with the respective missions of the U.S. Immigration and Customs Enforcement (ICE) or the U.S. Department of Homeland Security. The proposed project corridor would be constructed and operated largely within an existing, operational freeway; points of access would be only in Victorville and Las Vegas. Victorville is approximately 150 miles (or more, depending on the route) from the closest U.S. border with another country.</p> <p>With regard to security, the Transportation Security Administration (TSA) has jurisdiction over rail safety, air travel, and other modes of transportation. The TSA has a legal mandate to screen all commercial airline passengers but there is currently no such mandate applicable for rail transit, although the TSA implements numerous other programs intended to address risks to rail transportation, both passenger and freight. In the event that regulations are established in the future requiring airport-style screening of railroad passengers, the Applicant will be required to comply with all pertinent regulations. Should compliance with future regulations require building modifications, any physical environmental impacts associated with such modifications would be examined at that time. Such impacts would be purely speculative at this time.</p>
F-70	Miscellaneous	CCDOA	As you know, CCDOA is contractually and statutorily obligated to ensure that land uses in and around its aviation facilities will not impair the use and operation of such facilities. Accordingly, while CCDOA neither supports nor opposes DesertXpress, CCDOA is committed to ensuring that any	Please see <b>Appendix A</b> to this Record of Decision in which Mitigation Measure LU-2 has been revised to reflect revisions proposed to the FRA by the Federal Aviation Administration.

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			new infrastructure in southern Clark County is compatible with the siting, construction, and operation of the proposed Southern Nevada Supplemental Airport (SNSA). CCDOA is also committed to ensuring that new infrastructure in the Las Vegas Valley does not interfere with operations at McCarran International Airport (LAS) or any of its other facilities.	
F-71	Miscellaneous	CCDOA	We recommend that FRA delay issuance of a Record of Decision until it is able to examine the impacts of mitigation measures required by FAA for aviation safety purposes.	In consultation with the Federal Aviation Administration, the FRA has revised Mitigation Measures LU-1 and LU-2. Please see these updated measures within <b>Appendix A</b> of this Record of Decision.
F-72	Miscellaneous	SCH	The State Clearinghouse submitted the above named Final Environmental Statement to selected state agencies for review. The review period closed on May 2, 2011, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.	The Project's compliance with State Clearinghouse review requirements is noted.
F-73	Miscellaneous	James Brown	<p>I am opposed to the train paralleling 1-15 from Downtown Las Vegas to Victorville. I live two blocks from 1-15 near Silverado Ranch Road. I live on an acre and have for over twenty two years. I have invested over 1 million dollars on my 5000 square foot home, free standing 1000 square foot home theater, five car garage and 600 square foot work shop. A high-speed train so nearby will adversely affect my quality of life as well as my physical and emotion well being and substantially decreased the value of my property.</p> <p>I suggest the train run parallel to the existing train at least until it gets to Sloan or Jean. It can easily connect to the 1-15 corridor to Victorville. The people who live near that train chose to live where they are. None of the rest of the population near 1-15 chose to live near a train.</p>	<p>The commenter appears to indicate a preference for Segment 6C, in which the rail alignment would be constructed alongside the existing Union Pacific Railroad (UPRR) right-of-way. The UPRR owns this right-of-way. Please see Final EIS Chapter 4 (Comments and Coordination), Table F-4-1, comment numbers 275 and 276, in which the Union Pacific Railroad expressed opposition to the possible shared use of their right-of-way and trackways between Daggett, California and Las Vegas, Nevada. As the UPRR was unwilling to entertain shared use of their right-of-way and the FRA does not have the authority to compel the privately-held railroad to allow a shared use of this right-of-way, Segment 6C was found to be infeasible and thus was not included in the Preferred Alternative.</p> <p>The I-15 freeway is a long-established transportation corridor. The Project proposes adding a high-speed passenger rail line within this existing corridor including in the metropolitan Las Vegas area. The presence of the freeway has established and determined development patterns in the metropolitan Las Vegas area and elsewhere. The Nevada Department of Transportation plans to expand the width of the freeway to up to 14 lanes in some portions of metropolitan Las Vegas. The addition of high-speed passenger rail service into this corridor would not fundamentally change the transportation purpose of the corridor and would thus not introduce a new type of land use compatibility concern.</p> <p>Please also note that the Record of Decision includes requirements for the inclusion of noise mitigation measures: Please see Section 8.0 of this Record of Decision as well as Figure F-3.12-3 of the Final EIS, which shows the location where physical noise mitigation systems and materials would be utilized to reduce noise levels below a level of significance.</p>
F-74	Noise	Dean Martin Rural Neighborhood Preserve Association	<ul style="list-style-type: none"> <li>• The FEIS does not provide the estimated sound levels for different operating speeds.</li> <li>• The sound barrier of 4 feet will not contain the sound for residents adjacent to the tracks.</li> <li>• How will sound be mitigated where the rail is elevated?</li> </ul>	The Final EIS examined the anticipated speed of the Preferred Alternative at different locations. The Plan and Profile Drawings of the Preferred Alternative (Appendix F-C in the Final EIS) note the anticipated speeds at various points along the proposed rail alignment. The Final EIS examined speeds associated with the EMU (preferred technology alternative), which have higher top and average speeds than the DEMU technology analyzed in the Draft and Supplemental Draft EIS documents. Please also see Final EIS

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				Executive Summary Figure E, which shows typical train speeds in several types of locations along the rail alignment. Please see the response to comment F-75 regarding identified noise impacts and mitigation measures.
F-75	Noise	Marks	The selected alternative is adjacent to existing residential areas. The noise and vibration will be excessive thereby reducing the quality of life as well as the value of these residential properties.	The FRA examined noise and vibration impacts – please see section 3.12 of the Final EIS. Final EIS Section 3.12.2.3 identifies certain areas where noise associated with the proposed rail system would result in noise impacts. These impacts are fully mitigated by the measures set forth in Final EIS Section 3.12.3; these measures are also incorporated in this Record of Decision; please see Section 8.0. These measures include the installation of solid physical noise barriers at least 4 feet in height. Mitigation Measure NV-1 notes that noise barriers on elevated rail alignments are particularly effective in reducing noise levels owing to the additional buffering provided by the height of the elevated structure relative to people closer to ground level. With regard to vibration, Final EIS Section 3.12.2.3 concluded based on analysis that the Preferred Alternative would not result in any vibration effects at any point along the proposed corridor.
F-76	Purpose & Need	Gary & Carol Haley	I have lived and worked in California for most of my 70 plus years and we prefer our automobiles for trips to Las Vegas! It will not be used and become another tax supported burden to the working public like all the others in this state. The money should be spent to fix and repair our deteriorating highway system not just on 115 but throughout our country. Harry Reid knows this and should act accordingly! As I recall, you used to be able to catch a Union Pacific Train in Victorville and Barstow which took you to and from the Union Plaza Hotel and Casino in Las Vegas. This stopped years ago due to the lack of interest and customers.	The comments are noted and do not refer to any specific environmental effect identified in any of the NEPA documents for the DesertXpress project.
F-77	Purpose and Need	City of Barstow	The FEIS now indicates that the DesertXpress may, following completion of NEPA review, apply for federal funding under the Rehabilitation and Improvement Financing (RRIF) Program. (FEIS, p. 1-15.) This information -which was not disclosed to the public until after circulation of the DEIS and SDEIS - means that the DesertXpress Project may no longer meet the purpose and need identified in the EIS.	While the private Project Applicant may intend to apply for a loan from the federal government to finance construction of the proposed passenger rail system., the possibility of a loan to the private Project Applicant does not alter the fundamentally private nature of the proposal and therefore, no change to the discussion of the Purpose and Need for the proposed action is warranted.
F-78	Purpose and Need	City of Barstow	Finally, the FEIS confuses the definition of the proposed Project by speculating, without analysis, that the DesertXpress could be extended to the Ontario International Airport, the San Bernardino station, or "other communities" in the Los Angeles Basin." (FEIS, p. 1-8.) The FEIS does not explain how these connections could possibly be achieved while maintaining the high-speed rail definition of the Project. These tantalizing prospects appear to be illusions, used in the FEIS (as the promise of "private financing" has been used in the past) to make the DesertXpress appear to be a more appealing project than it really is.	The cited potential extensions were mentioned to provide context that the proposed rail line would have the ability to be extended; discussions of such extensions have commenced, particularly with regard to the neighboring High Desert Corridor project. However, none of these potential extensions are part of the project nor were any of the EIS analyses based on the assumption of any such potential extension. The project has demonstrated utility independent of any possible future connection that has been envisioned.
F-79	Purpose and Need	EPA	While we commend the FRA for seeking to provide a public transportation option in the Southern California and Southern Nevada area, we continue to have concerns raised in the DEIS and SDEIS about the siting of the project southern terminus in Victorville, rather than a terminus in a larger population center with other transit connections. We continue to recommend consideration of an option of connecting the high speed train service to the greater Los Angeles area, thereby reducing the number and length of individual automobile trips required to get to Victorville.	The proposed Victorville Station site is in reasonable proximity to the planned High Desert Corridor project, which is being considered to provide a safer, faster connection between Victorville and Palmdale. Planning efforts for the High Desert Corridor project include the provision of a median right-of-way large enough to accommodate the potential future inclusion of railroad tracks.
F-80	Section 4(f)	San Manuel Band of Mission Indians	The Department of Transportation Act, section 4(f) evaluation is incomplete. The FEIS presents inadequate information as to the nature. Significance and extent of the potentially eligible 4(f) historic properties. These include but are not necessarily limited to culturally significant landscapes where significant traditional events, activities or cultural observances have taken place that are associated with events that have made a significant contribution to the broad patterns of Serrano,	Please see the response to comment F-34.

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			Mohave and Chemehuevi Indian history. These include landscapes such as the area of the Halloran rock landscape, nearby pre-historic quarries, Mojave River landscape, Cronese Lake habitation sites. Mojave trail, and Chemehuevi Salt Song trial, Mohave Dream Song Trails, Serrano Traditional Trails and other pre-historic trails.	
F-81	Section 4(f)	San Manuel Band of Mission Indians	<p>The FEIS improperly excludes historic properties from 4(f) consideration as eligible under other National Register of Historic Places criteria and considers only under Criterion D ... After consultation with the SHPO or in this case the BLM and the appropriate Native American Tribes and/or Tribal Historic Preservation officer concludes that the archaeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place...The required consultation with Tribes for a determination that the resource is important chiefly because of what can be learned by data recovery and therefore has minimal value for preservation in place, has not occurred with regard to the 4(f) properties evaluated in FEIS. . . . The consultation with Tribe; as to 4(f) eligibility of Halloran, Cronise and that CA-SBR 07098, CA-SBR-00885 has been inadequate. Consultation took place on the Halloran and Cronise sits with site visits in January 2010. The Tribe expected that there would be a continuing dialogue as the 4(f) eligibility. The Tribe was not informed or consulted of pending determinations to remove these sites or others sites.</p>	<p>As stated in Final EIS Section 3.15.2, the FRA employed several specific criteria in assessing which cultural resources might qualify for protection under Section 4(f). The commenter appears to assert that resources that are found to be eligible for the National Register under Criterion D of the National Historic Preservation Act (36 CFR 60.4) should be considered potential Section 4(f) resources. As stated in Final EIS Section 3.15.2, only those archaeological resources determined to have value for preservation in place (in other words, those that are found to be eligible for the National Register under Criteria A, B, or C of the NHPA) are considered potential Section 4(f) resources. FRA believes this evaluation and approach is fully consistent with its responsibilities under Section 4(f). .</p> <p>As documented in Final EIS Section 4.0, the FRA and Cooperating Agencies consulted with interested Tribes regarding the Section 4(f) process. This consultation included a field visit in January 2010 to several sites potentially qualifying as Section 4(f) resources. Through this visit and subsequent consultation, project changes and modifications were developed and analyzed in the Supplemental Draft EIS and Final EIS that would avoid or minimize impacts to the identified resources.</p> <p>Final EIS Section 3.15.4.5 describes in detail the process the FRA, the BLM, and other Cooperating Agencies utilized in completing the Section 4(f) evaluation.</p> <p>The Programmatic Agreement for the Project sets forth a phased approach wherein formal eligibility determinations will occur after the Preferred Alternative is ratified by the Lead and Cooperating Agencies through Records of Decision. The FRA and the BLM took extensive steps (documented in Final EIS Section 3.15.4.5) using best-available information to develop preliminary eligibility determinations for all potential Section 4(f) resources. All of these resources were located on land under BLM control and BLM staff has reviewed the preliminary eligibility determinations.</p> <p>Under the Terms of the 2007 State Protocol Agreement among the California Director of the BLM and the SHPOs of California and Nevada, the BLM cultural resource staff in the project region are empowered to act on the SHPO's behalf in some circumstances, including making eligibility determinations for archaeological resources. In the event that the BLM should, acting under the terms of the Programmatic Agreement, determine that one or more of the potential Section 4(f) resources evaluated herein are in fact eligible for the National Register under a criterion other than "D", a supplemental evaluation will be required.</p> <p>The FRA believes the scenario described by the commenter is extremely remote, since site records were prepared for all of the candidate Section 4(f) resources, and the BLM field offices carefully reviewed these records in helping the FRA arrive at the preliminary eligibility determinations in the Final EIS Section 4(f) evaluation.</p>

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F-82	Section 4(f)	San Manuel Band of Mission Indians	The Tribe disagrees with the determination that CA-SBR-00885 is eligible under criterion "D" only. The site should also be eligible under NHRP criterion "A." The site has not been assessed as a cultural landscape.	The resource in question is outside the APE, as noted in Table F-3.15-2 of the Final EIS. The FRA and the BLM visited this resource site with several interested Tribes during a January 2010 field visit. Although outside the APE, the site was nonetheless assessed for possible visual effects to the resource site. The proposed rail alignment would be on grade and would run in between the resource area and an existing Caltrans rest area and parking lot. Owing to the compromised nature of the visual environment, the FRA and the BLM did not conclude that the Project would adversely affect the resource in question. Therefore, the FRA, in consultation with BLM, saw no compelling reason to carry forward this resource into the detailed Section 4(f) evaluation. Please also see the response to comment F-81.
F-83	Section 4(f)	San Manuel Band of Mission Indians	The Tribe disagrees with the determination that CA-SBR-03694 is eligible under criterion "D" only. The site should also be eligible under criterion "A." The required consultation with Tribes for determination that the resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place, has not occurred with regard to this property.	National Register eligibility for this resource had been previously determined; the resource was found to be eligible only under Criterion D. The Final EIS reflects an update in light of the proposed Project.  According to the BLM, the nature of this resource site in the Project area is a large lithic scatter. The site is extraordinarily expansive in area; in places the known boundaries of the site envelop both lanes of the I-15 freeway, as well as Field Road and the Caltrans rest area. For the portion of the resource site within the Project APE, the above factors are not contributing to the site's eligibility for the National Register.  Please also see the response to comment F-81.
F-84	Section 4(f)	San Manuel Band of Mission Indians	The Tribe disagrees with the determination that CA-SBR 07098/H is eligible under criterion "D" only.	As stated in Table F-3.15-2, the FRA and the BLM determined that this site would be eligible for the National Register only under criterion D. The FRA and the BLM are unaware that the site is associated with events that have made a significant contribution to broad patterns of American history (criterion A), associated with the lives of persons significant in our past, (criterion B) or that embody distinctive characteristics of a type, period, or method of construction that represent the work of a master or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (criterion C).  Please also see the response to F-81.
F-85	Section 4(f)		The Tribe disagrees with the determination that JSA -SD-S-002 is eligible under criterion "D" only. This site should be evaluated as part of larger cultural landscape.	Based on information gathered through field visits, literature searches, and other means, the FRA and the BLM agreed to a preliminary eligibility conclusion for the site, a prehistoric trail, would only be eligible under criterion D, owing to fragmentation of the trail and no discernable connection between the trail and other qualifying resources. Please also see the response to comment F-81  As noted above in the response to comment F-34, none of the cultural resources identified within the Project APE are known to be traditional cultural properties; as such, landscape level analysis as suggested by the commenter is not warranted.

Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
F-86	Traffic and Transportation	City of Barstow	The FEIS does not require either the lead agency or the applicant to actually implement the recommended mitigation measures; rather, it only suggests that "[a]pplicant would be responsible to contribute to these mitigation measures equal to their fair-share of the adverse effect as determined by the appropriate jurisdictional authority." The FEIS does not, however, examine whether programs are actually in place in the affected jurisdictions under which the applicant would be required to contribute on a "fair share" basis. Moreover, the FEIS contains no analysis of what the applicant's "fair share" would be for any of the recommended mitigation measures. Furthermore, the FEIS contains absolutely no analysis of the likelihood that any particular mitigation measure would actually be implemented, even if the applicant were required to pay its "fair share." Therefore, the FEIS is entirely lacking in evidentiary support for its conclusion that the identified potentially significant traffic and transportation impacts will be mitigated by the measures discussed in the document.... Since the FEIS does not require the mitigation measures to be adopted and implemented, the potentially significant traffic and transportation impacts identified in Section 3.5 remain significant and unavoidable. Thus, the conclusion in the FEIS that all impacts will be mitigated by the mitigation measures is erroneous and fails to comply with the statutory mandate of NEPA that all environmental impacts of the proposed Project be identified to allow informed decision-making.	<p>The Record of Decision incorporates all mitigation measures from the Final EIS and the Biological Opinion as formal commitments for the project. Please see Section 8.0 of this Record of Decision. The Final EIS (Table F-3.5-8) identifies the types of mitigation that would alleviate projected traffic impacts at various intersections near the station areas. The mitigation measures were reviewed by the respective State Departments of Transportation in California and Nevada; these agencies advised the FHWA throughout preparation of the NEPA documents.</p> <p>Per Section 8.0 of this Record of Decision, Consistent with 40 CFR 1505.3, the FRA as lead agency and certain Cooperating Agencies will monitor construction and operation of the Project to ensure that all Agency decisions are carried out. This will include but is not limited to a comprehensive mitigation and monitoring plan that the FRA and certain Cooperating Agencies will require and oversee as a means to ensure that all commitments identified in Appendix A are upheld during construction and operation of the Project. Therefore, the FRA has concluded that these reasonable and feasible measures are all implementable and that their implementation can be verified.</p>
F-87	Transportation	EPA	In our comments on the SDEIS, we highlighted the fact that the U.S. Department of Transportation (DOT) has committed to supporting sustainable communities through the HUD/DOT/EPA Partnership for Sustainable Communities. We believe that with additional project commitments, such as coordination with other transit providers to facilitate intermodal connections, commitments to work with local land use planning authorities to implement land use controls in the station area and surrounding areas, and commitments to coordinate this project with other federal investments in the project area, this project could better support the principles that HUD, DOT, and EPA committed to supporting as part of the Partnership....EPA also has remaining concerns about the air quality and growth inducement impacts of a project terminus in Victorville, due to the fact that the majority of riders would drive to the station from larger population centers throughout Southern California. We reiterate our recommendation that FRA coordinate with other public and private transit providers to encourage non-automobile trips to the DesertXpress stations. We specifically recommend coordination with local transit providers in Las Vegas, such as the Regional Transportation Commission of Southern Nevada, in order to facilitate intermodal connections.	<p>As the FRA communicated to the EPA in a conference call on April 24, 2011, the FRA shares the EPA's interest in seeing that any future Las Vegas passenger rail station is well-served by public transportation options, reducing the need for individual automobile travel and thus resulting in lower emissions of air pollutants in and around the station site. As indicated in this conference call, the Applicant has initiated discussions with transit service providers in the Las Vegas area to identify how either of the Las Vegas station site options might be served by the rerouting of existing bus lines or the introduction of new lines. Station design in both Victorville and Las Vegas will be able to accommodate bus ingress and egress.</p> <p>The Applicant has committed to a voluntary Mitigation Measure GRO-2 in which it commits to work with local land use planning authorities to encourage implementation of transit oriented and master planned development at the selected station site and surrounding areas; and will work with local transit providers to facilitate intermodal connections where practicable.</p>
F-88	Transportation/ Safety	Dean Martin Rural Neighborhood Preserve Association	How susceptible are train operations to wind speeds in excess of 50 mph along the above grade tracks?	As stated in Final EIS Section 2.3.2.4, variants of the proposed EMU train set have been in operation in Sweden, China, and elsewhere. As also noted in this section, the Applicant has proposed utilizing a variant of this technology that has been customized for the unique meteorological setting of the Mojave Desert. Such meteorological conditions include high temperatures, high winds, and sand storms.
F-89	Transportation/ Safety	Dean Martin Rural Neighborhood Preserve Association	Will the pillars for the above grade tracks, north of Blue Diamond Road, create a vehicle safety hazard?	Please see Final EIS Section 2.5.2.3, which contains an analysis of potential safety concerns of the project relative to ongoing safe freeway operations. This analysis was led by the FHWA, in close coordination with Caltrans and the Nevada DOT. The FHWA examined project plans for above grade tracks relative to accident records for the involved length of the I-15 freeway. These efforts were reflected in the Highway Interface Manual (Appendix F-B of the Final EIS), collaboratively developed by the Applicant, the FHWA, and the State DOTs. Mitigation in the Final EIS and incorporated in this Record of Decision requires that the design-build efforts to construct the project be

Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
				conducted in coordination with FHWA, Caltrans, and Nevada DOT to ensure that appropriate “clear zones” and other safety measures are incorporated into the built design.
F-90	Transportation/ Safety	Marks	The selected route indicates an elevated track necessary to clear the Silverado Ranch interchange; the Silverton Hotel and the Blue Diamond State Highway 160 flyover. The height of this elevated tract is upwards of 50-80 feet plus catenaries equipment. The problem stems from high winds. How is life and property protected from uncontrollable winds (some in excess of 50 miles per hour)?	As stated in Final EIS Section 2.3.2.4, variants of the proposed EMU train set have been in operation in Sweden, China, and elsewhere. As also noted in this section, the Applicant has proposed utilizing a variant of this technology that has been customized for the unique meteorological setting of the Mojave Desert. Such meteorological conditions include high temperatures, high winds, and sand storms.
F-91	Transportation/ Safety	Marks	The EIS cites traffic statistics to support its position that removal of vehicles from Interstate 15 will make travel easier and less hazardous by reducing accidents. Of particular note was the statistics pertaining to rear end accidents. Most accidents are the result of driver error (on the phone, texting, simply not paying attention or acts of god such as blown tires on trucks) it is difficult to accept, with any certainty, that the simple reduction in traffic flow numbers will reduce rear end or fatal accidents. In order to achieve such an objective, you have to have better roads and drivers, not necessarily less cars as well as more law enforcement.	As stated in Final EIS Section 1.3.2, freeway congestion is one factor related to rear-end collisions. The FRA does not dispute that other factors contribute to rear-end collisions. However, because of the potential for the proposed rail system to reduce traffic and thus reduce congestion it would also have the reasonably foreseeable effect of reducing the rate of rear-end collisions.
F-92	Utilities	Southern California Edison	<p>The Federal Railroad Administration's (FRA) presumption of federal preemption to the California Public Utilities Commission's licensing and permitting authority continues to be an open issue. Despite the Surface Transportation Board (STB) decision issued June 25, 2007, concerning federal preemption of DesertXpress from most state and local laws, it remains SCE's understanding that while the rail portion of the DesertXpress may be preempted, SCE's electric facilities are not and remain subject to CPUC General Order 131-D (GO 131-D), which sets forth the requirements and the CPUC's authority for, among other things, construction and relocation of electric facilities above 50 kV pursuant to the California Environmental Quality Act (CEQA)....</p> <p>SCE in prior comments has recommended the FRA contact the CPUC Energy Division to discuss the assumed federal preemption of CPUC authority. Based on recent communications with the CPUC Energy Division and the applicant DesertXpress Enterprises, LLC, SCE believes that no discussion between the parties has taken place. SCE again urges the FRA to contact the CPUC Energy Division to ensure the proper approach is taken on the federal preemption issue.</p> <p>Please be advised if development plans result in the need to build new or relocate existing SCE electrical facilities that operate at or above 50 kV, the SCE construction may have environmental impacts subject to CEQA review as required by the CPUC.</p> <p>If the SCE facilities are not adequately addressed in the CEQA review for the larger project, and the new facilities could result in significant environmental impacts, the required additional CEQA review at the CPUC could delay approval of the SCE power line portion of the project for two years or longer. Additionally, if new construction/relocation of SCE facilities is required for the proposed project, further delays may occur due to the SCE development process of required electrical infrastructure.</p>	Please see the responses to comments S-322 and S-323 of the Supplemental Draft EIS (Final EIS pages 4-134 through 4-135). A power source for the project has not yet been identified, but the project includes all necessary electrical infrastructure. As stated in the response to comment S-323, the STB’s June 2007 decision stated that the project would be expressly preempted from any state and local permitting requirements that could be used to deny or unnecessarily delay the railroad’s right to proceed with the project (a right which would attach with the STB’s Record of Decision on the proposed action). The STB explained in comment S-323 that there is a body of court decisions relating to the preemption provisions of 49 U.S.C. 10501(b) and that guidance beyond those decisions could only be granted by the STB Board itself or a court of competent jurisdiction.
F-93	Utilities	Southern California Edison	SCE Company right-of-ways and fee-owned properties are purchased for the exclusive use of SCE to operate and maintain its present and future electric system facilities. Any proposed use of SCE rights-of-way will be reviewed on a case-by-case basis by the appropriate SCE operating department. Approvals or denials will be in writing based upon review of the maps provided and compatibility with SCE right-of-way constraints and rights.	The comment is noted.
F-94	Utilities and Services	City of Barstow	The FEIS states that new stations may be needed for the Clark County Fire Department and the San Bernardino County Fire Department, but there is no analysis regarding the potential environmental impacts associated with such new facilities in either of the draft documents or the FEIS. (DEIS, pp.	Section 3.4.2.3 of the Final EIS identifies that the Preferred Alternative will create incremental demand for certain additional fire and emergency services. These conclusions were drawn from consultation with local fire and emergency service



Comment Number	Final EIS Section/Topic	Commenter	Comment	Response
			3.4-35 to 3.4-36, SDEIS pp. 3.4-16 to 3.4-17, FEIS pp. 3.4-16 to 3.4-17.) The FEIS further states that the Barstow Fire Protection District informed the FRA that present staffing levels are insufficient to meet the needs of Segment 2C and new facilities will be necessary if this Segment is part of the final Project, but there is no analysis of the environmental impacts associated with such new facilities in either the drafts or the FEIS. (DEIS, pp. 3.4-35 to 3.4-36, SDEIS p. 3.4-16, FEIS p. 3-4.17.) Instead, the FEIS dismissed this comment by claiming that due to the Project's close proximity to two existing stations in Barstow, the additional need for the proposed Project can be readily met with the existing stations. The FEIS completely ignores the specific concerns raised in the comment. The failure to address these potential environmental impacts in the FEIS renders the analysis of environmental impacts associated with utilities and services inadequate under NEPA.	providers in the project region. These providers indicated that the incremental demand of the proposed rail system would contribute to a need for new equipment and/or facilities. Mitigation Measure UTIL-6 requires that the Applicant pay impact fees to each affected agency at the time the applicant seeks a permit to construct. Per Section 8.0 of this Record of Decision, the Applicant must demonstrate to the FRA that compliance with these and other mitigation commitments has been achieved.
F-95	Visual	Dean Martin Rural Neighborhood Preserve Association	The effects of light pollution were not considered. The above grade tracks must have shielded lighting to protect the adjacent residents and businesses. The at-grade tracks north of St. Rose Parkway have residents less than 50ft. from the tracks who need to be protected.... Lighting for the sub-station and maintenance facility were not addressed.	Final EIS Section 3.6 .2.3 evaluated the potential for light and glare. Sources of nighttime lighting would only include the lighting at stations and maintenance facilities and the headlights of passing trains. To mitigate the potential adverse effects from the lighting associated with the Preferred Alternative, Final EIS Section 3.6.3.1 includes Mitigation Measures VIS-1 and VIS-5. Implementation of Mitigation Measure VIS-1 requires the Applicant to place visual screening on the top of the crash barriers along the entire rail corridor. Analysis during the design-build process shall determine the specific details for the screening and if there are locations where it may not be needed. Implementation of Mitigation Measure VIS-5 requires the Applicant to design the lighting at stations and maintenance facilities to minimize disruption of the natural dark at night in the non-urbanized landscape. The final lighting plan for these stations and maintenance facilities shall incorporate light and glare screening measures such as the use of plantings to screen well-lit areas, use of downward cast lighting, and the use of motion sensor lighting where appropriate.
F-96	Visual	Dean Martin Rural Neighborhood Preserve Association	The businesses located north of Blue Diamond Road will have their signs blocked by the above grade track structure. This could result in severe economic impact to business and property owners.	The visual environment of the I-15 freeway through metropolitan Las Vegas, particularly points north of Blue Diamond Road, is highly disturbed with numerous signs, buildings, and other attractions competing for visual attention. The addition of an elevated section of railroad in this environment would not constitute a substantial adverse physical environmental impact. Please see Final EIS Section 3.6.2.3 for a discussion of the visual effects related to the Preferred Alternative.

## **APPENDIX D Stipulations**

### **1.0 General Stipulations**

- 1.1.** The BLM Authorized Officer for the administration of this grant is the Field Manager, Barstow Field Office, 2601 Barstow Road, Barstow, CA, Phone (760) 252-6000.
- 1.2.** The holder shall designate a representative(s) who shall have the authority to act upon and to implement instructions from the authorized officer. The holder's representative shall be available for communication with the authorized officer within a reasonable time when construction or other surface disturbing activities are underway.
- 1.3.** The holder shall conduct all activities associated with the operation, and termination of the grant within the authorized limits of the grant.
- 1.4.** The Holder shall protect all survey monuments found within the grant. Survey monuments include, but are not limited to, General Land Office and Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above, the Holder shall immediately report the incident, in writing, to the Authorized Officer and the respective installing authority if known. Where General Land Office or Bureau of Land Management survey monuments or references are obliterated during operations, the Holder shall secure the services of a registered land surveyor or a Bureau cadastral surveyor to restore the disturbed monuments and references using surveying procedures found in the Manual of Surveying Instructions for the Survey of the Public Lands in the United States, latest edition. The Holder shall record such survey in the appropriate county and send a copy to the Authorized Officer. If the Bureau cadastral surveyors or other Federal surveyors are used to restore the disturbed survey monument, the Holder shall be responsible for the survey cost.
- 1.5.** Bonding During Termination: A bond or other security, acceptable to the authorized officer shall be furnished by the holder prior to issuance of a Notice to Proceed, or at such earlier date as may be specified by the authorized officer. The amount of this bond or security shall be determined by the authorized officer. This bond or security must be maintained in effect until removal of improvements and restoration of the right-of-way have been accepted by the authorized officer.
- 1.6.** Replacement of Bonds or Other Security: Should the bond or other security delivered under this grant become unsatisfactory to the authorized officer, the holder, shall, within 30 days of demand, furnish a new bond or other security.

- 1.7.** Forfeit of deposit. The holder agrees that all monies deposited with the authorized officer as security for holder's performance of the terms and conditions of this grant may, upon failure on the holder's part to fulfill any of the requirements herein set forth or made a part hereof, be retained by the United States to be applied as far as may be needed to the satisfaction of the holder's obligations assumed hereunder, without prejudice whatever to any other rights and remedies of the United States.
- 1.8.** The holder shall submit plans that describe in detail the construction, operation, maintenance, and termination of the right-of-way and its associated improvements and or facilities, for each segment of the project. The degree and scope of these plans will vary depending upon (1) the complexity of the right-of-way or its associated improvement and/or facilities, (2) the anticipated conflicts that require mitigation, and (3) additional technical information required by the authorized officer. The plans will be reviewed and, if appropriate, modified and approved by the authorized officer.
- 1.9.** The holder shall contact the authorized officer at least 60 days prior to the anticipated start of construction and/or any surface disturbing activities. The authorized officer may require and schedule a preconstruction conference with the holder prior to the holder's commencing construction and/or surface disturbing activities on the right-of-way. The holder and/or his representative shall attend this conference. The holder's contractor, or agents involved with construction and/or any surface disturbing activities associated with the right-of-way, shall also attend this conference to review the stipulations of the grant including the plan(s) of development.
- 1.10.** The holder shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with the plan of development which was approved and made part of the grant. Any relocation, additional construction, or use that is not in accord with the approved plan(s) of development, shall not be initiated without the prior written approval of the authorized officer. A copy of the complete right-of-way grant, including all stipulations and approved plan(s) of development, shall be made available on the right-of-way area during construction, operation, and termination to the authorized officer. Noncompliance with the above will be grounds for an immediate temporary suspension of activities if it constitutes a threat to public health and safety or the environment.
- 1.11.** The holder shall not initiate any construction or other surface disturbing activities on the right-of-way without the prior written authorization of the authorized officer. Such authorization shall be a written notice to proceed issued by the authorized officer. Any notice to proceed shall authorize construction or use only as therein expressly stated and only for the particular location or use therein described.
- 1.12.** The authorized officer may suspend or terminate in whole, or in part, any notice to proceed which has been issued when, in judgment, unforeseen conditions arise which result in the approved terms and conditions being inadequate to protect the public health and safety or to protect the environment.

- 1.13.** Construction related traffic shall be restricted to routes approved by the authorized officer. New access roads or cross-county vehicle travel will not be permitted unless prior written approval is given by the authorized officer. Authorized roads used by the holder shall be rehabilitated or maintained when construction activities are complete as approved by the authorized officer.
- 1.14.** Prior to termination of the right-of-way, the holder shall contact the authorized officer to arrange a pretermination conference. This conference will be held to review the termination provisions of the grant.
- 1.15.** Two years prior to termination of the right-of-way, the holder shall contact the authorized officer to arrange a joint inspection of the right-of-way. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, or surface material, recontouring, topsoiling, or seeding. The authorized officer must approve the plan in writing prior to the holder's commencement of any termination activities.
- 1.16.** The right-of-way shall be maintained in a sanitary condition at all times. Waste materials shall be disposed of promptly at an approved waste disposal site. "Waste," as used in this paragraph, shall mean all discarded matter of any kind.
- 1.17.** Holder shall mark the exterior boundaries of the right-of-way with stake and/or lath at 100 to 200 foot intervals. The intervals may be varied at the time of staking at the discretion of the Authorized Officer. The tops of the stakes and/or laths will be painted and the laths flagged in a distinctive color as determined by the Holder. Holder shall maintain all boundary stakes and/or laths in place until final cleanup and restoration is completed.
- 1.18.** Holder shall maintain the right-of-way in a safe, useable condition, as directed by the Authorized Officer. A regular maintenance program shall include, but is not limited to, soil stabilization.
- 1.19.** In the event that the public land underlying the right-of-way encompassed in this grant, or a portion thereof, is conveyed out of Federal ownership and administration of the ROW or the land underlying the ROW is not being reserved to the United States in the patent/deed and/or the ROW is not within a ROW corridor being reserved to the United States in the patent/deed, the United States waives any right it has to administer the right-of-way, or portion thereof, within the conveyed land under Federal laws, statutes, and regulations, including the regulations at 43 CFR Part [2800][2880], including any rights to have the holder apply to BLM for amendments, modifications, or assignments and for BLM to approve or recognize such amendments, modifications, or assignments. At the time of conveyance, the patentee/grantee, and their successors and assigns, shall succeed to the interests of the United States in all matters relating to the right-of-way, or portion thereof, within the

conveyed land and shall be subject to applicable State and local government laws, statutes, and ordinances. After conveyance, any disputes concerning compliance with the use and the terms and conditions of the ROW shall be considered a civil matter between the patentee/grantee and the ROW Holder.

- 1.20.** Within 90 days of construction completion, the Holder shall provide the Authorized Officer with data in a format compatible with the Bureau's Arc-Info Geographic Information System to accurately locate and identify the right-of-way:

Currently acceptable data formats are:  
Corrected Global Positioning System files with sub-meter accuracy or better, in UTM NAD 83; Zone 11;  
ARCGIS export files on a CD ROM, shapefile, geodatabase.

All data shall include metadata for each coverage, and conform to the Content Standards for Digital Geospatial Metadata Federal Geographic Data Committee standards.

## **2.0 Air Quality**

- 2.1.** The Holder shall not violate applicable air standards or related facility siting standards established by or pursuant to applicable federal, state, or local laws or regulations. The Holder shall be responsible for dust abatement within the limits of the right-of-way and is responsible for obtaining all necessary permits from appropriate authorities for acceptable dust abatement and control methods (e.g., water, chemicals). The Holder shall be solely responsible for all violations of any air quality permit, law, or regulation, as a result of its action, inaction, use, or occupancy of the right-of-way.

Notwithstanding whether a violation of any air quality permit, law or regulation results, the Holder will cooperate with the Authorized Officer in implementing and maintaining reasonable and appropriate dust control methods in conformance with law and appropriate to the circumstances at the sole cost of the Holder.

Prior to relinquishment, abandonment, or termination of this right-of-way, the Holder shall apply reasonable and appropriate dust abatement and control measures to all disturbed areas. The abatement and measures shall be designed to be effective over the long-term (e.g., rock mulch or other means) and acceptable to the Authorized Officer.

- 2.2.** During excavation, backfilling, and contouring, the disturbed soil shall be wetted sufficiently in order to effectively reduce airborne dust and reduce soil erosion.

## **3.0 Hazardous Material/Pesticides/Liability**

- 3.1.** No hazardous material, substance, or hazardous waste, (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, *et seq.*, or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) shall be used, produced, transported, released, disposed of, or stored within the right-of-way area at any time by the Holder. The Holder shall immediately report any release of hazardous substances (leaks, spills, etc.) caused by the Holder or third parties in excess of the reportable quantity as required by federal, state, or local laws and regulations. A copy of any report required or requested by any federal, state, or local government agency as a result of a reportable release or spill of any hazardous substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved federal, state, or local government agency.
- 3.2.** The Holder shall immediately notify the Authorized Officer of any release of hazardous substances, toxic substances, or hazardous waste on or near the right-of-way potentially affecting the right-of-way of which the Holder is aware.
- 3.3.** As required by law, Holder shall have responsibility for and shall take all action(s) necessary to fully remediate and address the hazardous substance(s) on or emanating from the right-of way.
- 3.4.** Use of pesticides shall comply with the applicable Federal and state laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the Holder shall obtain from the Authorized Officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers and any other information deemed necessary by the Authorized Officer.

The plan shall be submitted no later than November 1 of any calendar year that covers the proposed activities for the next fiscal year.

Pesticides shall not be permanently stored on public lands authorized for use under this right-of-way.

- 3.5.** The Holder shall comply with all applicable local, state, and federal air, water, hazardous substance, solid waste, or other environmental laws and regulations, existing or hereafter enacted or promulgated. To the full extent permissible by law, the Holder agrees to indemnify and hold harmless, within the limits, if any, established by state law (as state law exists on the effective date of the right-of-way), the United States against any liability arising from the Holder's use or occupancy of the right-of way, regardless of whether the Holder has actually developed or caused development to occur on the right-of-way, from the time of the issuance of this right-of-way to the Holder, and during the term of this right-of-way. This agreement to indemnify and hold harmless the United States against any liability shall apply without regard to whether the liability is caused by the Holder, its agents, contractors, or third parties. If the liability is caused by third parties, the Holder will pursue legal

remedies against such third parties as if the Holder were the fee owner of the right-of-way.

Notwithstanding any limits to the Holder's ability to indemnify and hold harmless the United States which may exist under state law, the Holder agrees to bear all responsibility (financial or other) for any and all liability or responsibility of any kind or nature assessed against the United States arising from the Holder's use or occupancy of the right-of way regardless of whether the Holder has actually developed or caused development to occur on the right-of-way from the time of the issuance of this right-of-way to the Holder and during the term of this right-of-way.

- 3.6. Mineral material generated, and not needed for the development of the proposed action within the right-of-way site, requires a specific BLM use authorization in accordance with regulations at 43 CFR 3600 prior to the removal of in place excess mineral material. All mineral material needs to be used on site within the right-of-way or stockpiled on site, at locations approved by the authorized officer, for sale by the BLM.

#### **4.0 Vegetation/Noxious Weeds/Land surface Treatment/Soil/Water/Riparian**

- 4.1. For all cactus and yucca that might be impacted by this action in Nevada the holder shall coordinate with the Nevada Division of Transportation to salvage and plant salvaged plants in Nevada Division of Transportation stockpile facilities to replant them on project impact areas following construction. For all succulents that might be impacted by this action in California, the holder shall prepare a Salvage Plan for all those "salvaged" plants that require salvage under State law and San Bernardino county ordinance.
- 4.2. The Holder shall be responsible for weed control on disturbed areas within the limits of the right-of-way. The Holder is responsible for consultation with the Authorized Officer and/or local authorities for acceptable weed control methods within right-of-way limits imposed in the right-of-way stipulations. Any use of herbicides for weed control must be approved by the authorized officer.
- 4.3. Following excavation, trenches shall be backfilled with the excavated soil. The soil shall be distributed and contoured evenly over the surface of the disturbed area. The soil surface will be left rough to help reduce potential wind erosion.
- 4.4. In Nevada, if work is to occur in Ephemeral channels, the holder shall consult with Army Corp of Engineers (ACOE) and Nevada Department of Environmental Protection (NDEP). If drilling boreholes, holder needs to follow Nevada Administrative Code (NAC) protocols for drilling and request additional permit from the BLM.

#### **5.0 Migratory Birds**

- 5.1.** To prevent undue harm, habitat-altering projects or portions of projects should be scheduled outside bird breeding season. In upland desert habitats and ephemeral washes containing upland species, the season generally occurs between March 15th - July 30th.
- 5.2.** If a project that may alter any breeding habitat has to occur during the breeding season, then a qualified biologist must survey the area for nests prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, an appropriately sized buffer area must be avoided until the young birds fledge.

## **6.0 Land Use**

- 6.1.** Holder shall coordinate with the Federal Aviation Administration (FAA), the Clark County Department of Aviation (CCDOA), and airlines operating at McCarran International Airport to avoid impacts to the one-engine inoperative zones and departure conditions under FAA standards. Consistent with Paragraph 6-3-1.b of FAA Order 7400.2G, the Project shall not penetrate the 62.5:1 Obstruction Identification Surface (OIS) at McCarran International Airport. The holder shall provide BLM with written verification of the agreement with the Manager of the FAA's Flight Standards Division, Western-Pacific Region, and the CCDOA prior to completion of Project designs for the affected portion of Segment 6B.
- 6.2.** The Holder shall obtain a Part 77 determination from the FAA to confirm that the project does not present a hazard to air navigation.

## **7.0 Grazing**

- 7.1.** Prior to issuance of the initial Notice to Proceed, the holder shall consult with BLM range resource managers to determine the affect of the action on livestock access to water. If BLM range resource managers determine that construction would block livestock access to critical water sources, the holder shall provide alternative water sources as approved by the BLM authorized officer.
- 7.2.** Prior to issuance of the initial Notice to Proceed, the holder shall coordinate with BLM range resource managers and grazing lessees to locate range improvements that might require special attention when fencing or gates are modified. Gates that do not require removal shall be closed directly after construction traffic has passed through them. The holder shall replace all range improvements damaged or removed during construction activities as determined necessary by the BLM.
- 7.3.** Provide Adequate Cattle Access in Areas of the Joint NPS/BLM Grazing Allotment (Segment 4C)4. Prior to issuance of the Notice to Proceed, the holder shall prepare revised plans for Segment 4C, which include adequate cattle crossings to allow



movement of cattle within the joint NPS/BLM grazing allotment. The location, number, and design of the crossings shall be reviewed and approved by the Superintendent for the Mojave National Preserve.

## **8.0 Utilities/Emergency Services**

- 8.1.** For anticipated water usage in California the holder shall prepare a Water Supply Assessment. Low water usage practices shall be implemented, including in restrooms and landscaping. Landscaping of such facilities shall feature drought-tolerant and/or xeriscaping plantings that will minimize or avoid the need for any landscape watering.
- 8.2.** The holder shall obtain “water commitment” from LVVWD to ensure that the proposed action would be served by enough water for usage and to meet fireflow requirements.
- 8.3.** The holder shall coordinate with the state transportation agencies in California and Nevada to ensure that the project rail alignments connect to existing stormwater discharge facilities. Wherever the addition of project-generated storm water would exceed the capacity of existing discharge facilities, the project holder shall either fund the upsizing of existing facilities or create new facilities that comply with local storm water regulations. The holder shall incorporate all such changes into the design plans for the project.
- 8.4.** The holder shall develop appropriate storm water conveyance structures/systems at station and maintenance facility sites, as well as points along railroad segments where it is not possible to connect to existing systems: The Holder shall coordinate with the local agencies to develop appropriate storm water conveyance structures/systems in the areas of the proposed improvements. The Holder shall either fund the upsizing of existing facilities or create new facilities that comply with local storm water regulations.
- 8.5.** The Holder shall develop and implement an emergency preparedness plan that complies with the provisions set forth in FRA’s most current Guide to Developing a Passenger Train Emergency Preparedness Plan.<sup>2</sup> This plan shall set forth protocols in the event of train derailments and other catastrophic events. The holder shall be responsible for conducting briefings and/or trainings on the plan with all appropriate employees, as well as with representatives of local first responders and transportation agencies. This may include a training of local first responders regarding proposed rail facilities, including train sets, any catenary structures, and other unique features. The plan shall set forth appropriate lines of communication in the event of emergency events. The plan shall specifically identify protocols in the event an emergency involving a train derailment and blockage of any freeway lanes, an emergency in the proposed tunnels within Segment 4C, and emergencies involving loss of locomotive power.

The Holder shall file one copy of the proposed emergency preparedness plan with the head of FRA's Office of Railroad Safety, FRA's Associate Administrator for Railroad Safety/Chief Safety Officer, not less than 45 days prior to commencing the passenger train service described in the proposed plan. FRA will conduct a review of the proposed plan to determine whether the elements prescribed in Part, 239 of Title 49 of the CFR are sufficiently addressed and discussed in the proposed plan. FRA must issue a final approval letter to the Holder prior to opening services to the public. The holder shall file a copy of the plan and FRA's approval with the BLM's authorized officer.

- 8.6.** For water, wastewater, communications, local gas pipelines, and other physical facilities that the proposed rail alignments and/or stations would cross, the following mitigations would avoid or minimize any adverse effects. If the adjustment or relocation of any existing utility or pipeline or any permitted encroachment is unavoidable, the holder shall be responsible for all costs to the utility facility.

Utility Type Intersected/Crossed	Mitigation Strategy
Water utilities	Protect pipelines/canals in place; span any crossings of open canals.
Local natural gas distribution systems	Protect/encase pipelines in place. Utilize alternating current if EMU locomotive option is selected.
Fiber optic/communications lines	Protect line, as appropriate

Additional mitigation for electrical transmission lines and major petroleum pipelines is provided below.

*Electrical transmission lines:* Continue to coordinate closely with all electric utilities as design moves forward to ensure that final design meets any design requirements that may be set forth for development beneath electrical transmission lines.

When grading activity affects the Los Angeles Department of Water and Power's transmission line access roads, the Holder shall replace the affected access roads using the Los Angeles Department of Water and Power's Access Road Design Criteria.

*Petroleum pipelines:* Continue to coordinate with pipeline companies into next phase of design and construction. Encase/protect all pipelines as needed to minimize any possible conflict, including any possible concerns about stray electrical current.

## **9.0 Traffic and Transportation**

The Holder shall coordinate with Caltrans, NDOT, and FHWA for the design review and approval of specific project components within the I-15 right-of-way. The design review shall be conducted within the parameters defined in the Highway Interface

Manual. The procedures for the design review shall be agreed to by the Holder and transportation agencies in a separate agreement.

The design review shall be used to determine the following:

- Permanent placement of visual barriers from a motorist perspective;
- Need for standard highway work area traffic control measures both within and beyond the clear zone; and
- Appropriate protocols for access to the railroad from I-15, for operations, maintenance, or operations, and ensure meet construction codes.

Project components within the I-15 right-of-way that require approval by the highway agencies for traffic safety, and to avoid vehicle intrusion into the railroad right-of-way, include the following:

- Clear zone modifications
- Barriers
- Bridges and tunnels
- Vertical clearance
- Retaining walls
- Drainage
- Median crossings
- Sight distance
- Security plans
- Fencing
- Visual screening
- Locked-gate access
- Temporary construction access
- Freeway interchanges or ramps and modifications
- Signing and striping
- Emergency preparedness plans

## **10.0 Visual Resources**

- 10.1.** Rail features, including pillars, raised tracks, trains, catenary structures, crash barriers, and embankments, shall be designed to blend with or represent the surrounding desert environment. Features shall be created in muted desert colors approved by the BLM authorized officer. Bright colors and highly reflective materials shall be avoided. Rail features defined in the design-build process shall include visual elements, which create a sense of place and a memorable experience for both motorists and pedestrians. Concrete shall be embossed with symbols or patterns, which create a visual link between rail features and the surrounding communities and/or the non-urbanized landscape. Visual screening shall be placed on the top of the crash barriers along the entire project corridor to mitigate any potential visual distraction to motorists from the trains and train lights. Analysis during the design-build process shall determine the specific details for the screening

and if there are locations, where it may not be needed. The design of rail features shall be reviewed by the BLM and Caltrans or NDOT as appropriate.

- 10.2.** The Victorville Station and associated elements, such as the parking garage and pedestrian walkways, shall be developed with architecture, muted colors, and landscaping that reflect the surrounding desert aesthetic. The landscaping plan shall include the use of drought resistant desert plants, gravel, and stone. Pedestrian elements such as pathways and portals in both the station building and the associated garage shall incorporate desert elements such as landscaping, muted colors and the use of desert-related symbols and patterns. Signage shall be consistent with the scale and character of the site and surroundings and avoid the use of highly reflective materials or bright neon lights.
- 10.3.** No advertising signs or devices shall be placed on the premises or on adjacent public lands, except those posted by or at the direction of the Authorized Officer, or otherwise permitted in the Plan of Development.
- 10.4.** Maintenance facilities shall be designed to be aesthetically appropriate for the surrounding desert landscape through the use of muted colors and desert landscaping approved by the Authorized Officer. The use of highly reflective materials shall be avoided. Concrete may be embossed with desert symbols and patterns.
- 10.5.** Contour grading techniques shall be employed to reduce the visual appearance of cuts and fill slopes. Grades, cuts, and fills shall be shaped so as to appear consistent and continuous with the natural landscape forms.
- 10.6.** Lighting at stations and maintenance facilities outside of metropolitan Las Vegas shall be designed to minimize disruption of the natural dark at night in the desert landscape. The final lighting plan for these stations and maintenance facilities shall incorporate light and glare screening measures such as the use of plantings to screen well-lit areas, use of downward cast lighting, and the use of motion sensor lighting where appropriate.
- 10.7.** Within California, the Holder shall provide interpretive displays and artwork in station pedestrian areas in order to create a coherent pedestrian landscape and sense of place. Such displays shall be consistent with the Desert Managers Group's Caltrans Safety Roadside Rest Stop Interpretive Exhibit Design.
- 10.8.** Construction areas shall be maintained in an orderly manner, including proper containment and disposal of litter and debris to prevent dispersal onto adjacent properties or streets.
- 10.9.** Construction crews working at night shall direct any artificial lighting onto the work area to minimize the spillover of light or glare onto adjacent areas. Construction lighting shall be screened from viewer groups, such as motorists or residents in

nearby towns and communities to prevent visible lighting overflow into the natural dark of the desert at night.

- 10.10.** Visual screening shall be erected along construction and staging areas to ensure safety and minimize visual intrusions.
- 10.11.** The Holder shall replace landscaping removed during construction as directed by Caltrans or NDOT as appropriate. Landscaping in Nevada along the I-15 freeway shall follow NDOT's I-15 *Landscape and Aesthetics Corridor Plan*, 2005. Replacement landscaping shall occur in the median, along the shoulder, and in other areas along the I-15 freeway, within six months of the completion of construction. In accordance with the NDOT LAMP, up to three percent of the total construction cost of the DesertXpress project may be allocated to landscape and aesthetic treatments, with NDOT funding the consultant cost for landscape and design. Effects from tree and plant removal will be mitigated through ensuring that disturbed areas of native vegetation will be restored to preconstruction site conditions.

## **11.0 Archaeological Resources**

- 11.1.** The proponent(s) will immediately bring to the attention of the Barstow Field Manager (or their designated representative) any cultural resources (prehistoric/historic sites or objects) and/or paleontological resources (fossils) encountered during permitted operations and maintain the integrity of such resources pending subsequent investigation.
- 11.2.** Any cultural and/or paleontological resource (historic/prehistoric site or object) discovered by the holder, or any person working on their behalf, on public or Federal land shall immediately be reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder. In the case of inadvertent finds of Native American human remains, the most likely effected tribe or Tribes will be notified in addition to the notification of the Native American Heritage Commission and the coroner as provided by law.
- 11.3.** The Holder shall attempt to avoid archeological resources through Project design, as determined feasible in coordination with FRA and BLM. Prior to determining whether avoidance is feasible however, it may be necessary to conduct test excavations to determine the vertical and horizontal extent of resources. Once avoidance can be assured, resource location information would be placed on construction drawings in design build plans as locations to be monitored throughout construction. If during monitoring it was determined, that avoidance was infeasible

then the process outlined below under Evaluation (Mitigation Measure CR-2) would be followed.

**11.4. Inadvertent Discovery of Human Remains**

Upon discovery of human remains in California, all work in the area must cease immediately, nothing disturbed and the area is to be secured. The County Coroner's Office of the county where the remains were located must be called. The Coroner has two working days to examine the remains after notification. The appropriate land manager/owner or the site shall also be called and informed of the discovery.

If the remains are located on federal lands, federal land managers/federal law enforcement/federal archaeologist are to be informed as well because of complementary jurisdiction issues. It is very important that the suspected remains and the area around them remain undisturbed and the proper authorities called to the scene as soon as possible as it could be a crime scene.

The Coroner will determine if the bones are historic/archaeological or a modern legal case.

**Modern Remains**

If the Coroner's Office determines the remains are of modern origin, the appropriate law enforcement officials will be called by the Coroner and conduct the required procedures. Work will not resume until law enforcement has released the area.

**Archaeological Remains**

If the remains are determined to be archaeological in origin and there is no legal question, the protocol changes depending on whether the discovery site is located on federally or non-federally owned/managed lands.

**Remains discovered on federally owned/managed lands**

After the Coroner has determined the remains are archaeological or historic and there is no legal question, the appropriate Field Office Archaeologist must be called. The archaeologist will initiate the proper procedures under ARPA and Native American Graves Protection and Repatriation Act (NAGPRA). If the remains can be determined to be Native American, the steps as outlined in NAGPRA, 43 CFR 10.6 Inadvertent discoveries, must be followed.

- 11.5.** Prior to the commencement of ground disturbing activities, the FRA shall, in consultation with the cooperating agencies and with the Consulting Tribes, evaluate all cultural resources located within the Area of Potential Effect for the Selected Alternative for eligibility for listing in the National Register of Historic Places. With the exception of the expedited procedures outlined within the Programmatic Agreement developed for the Project (as set forth in Final EIS Appendix F-H), the FRA and the cooperating agencies will follow the provisions of 36 CFR §800.4(c). Evaluation methods and criteria shall be consistent with the Secretary of the Interior's

Standards and Guidelines for Evaluation (48 Federal Register 44729-44738) (36 CFR Part 63).

To the extent practicable, the FRA shall make eligibility determinations based on inventory information. If the information gathered in the inventory is inadequate to determine eligibility, the FRA, through its contractors and subcontractors, shall conduct limited subsurface testing or other evaluative techniques to determine eligibility.

As needed, the FRA, in consultation with the signatories and other cooperating agencies, shall develop testing plans and consolidate all testing plans into one submission per state for concurrence by the appropriate State Historic Preservation Officer.

Consistent with term III.B.7 of the Programmatic Agreement for the Project, the Holder shall make all reasonable efforts to ensure that Native American monitor(s) designated by the Consulting Tribes are present during archaeological test excavation.

- 11.6.** The FRA, in consultation with the cooperating agencies and the Consulting Tribes, shall develop one or more Historic Properties Treatment Plan(s) in accordance with the procedures outlined in Attachment D of the Programmatic Agreement for the Project (see Final EIS Appendix F-H). The FRA shall ensure mitigation for affected resources that are determined to be significant under National Register Criteria A, B, and C (36 CFR 60.4), such as the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) program. The FRA shall follow the process outlined in the HPTP to conduct data recovery and any other appropriate mitigation. All archaeological work on National Register-eligible properties shall be conducted in accordance with “Treatment of Archaeological Properties: A Handbook” and “Archaeology and Historic Preservation: the Secretary of the Interior’s Standards and Guidelines.” Investigations shall be performed under the supervision of professionals whose education and experience meet or exceed the Secretary of the Interior’s “Professional Qualifications Standards.”

The FRA shall ensure that curation of records and other cultural materials resulting from identification and data recovery efforts on federal lands is handled in accordance with 36 CFR Part 79. All archaeological materials recovered from federal lands shall be curated in accordance with 36 CFR Part 79 in the repository/repositories indicated in the original permit.

No federal agency shall authorize access to lands or construction of any individual segment of the Project until receipt of concurrence from the appropriate State Historic Preservation Officer that the mitigation efforts have met the terms of the Historic Properties Treatment Plan(s) and the Section 106 responsibilities as described in the PA have been fulfilled for that segment.

- 11.7.** Portions of the Area of Potential Effect for the Selected Alternative have been determined to have the potential for buried resources. During construction, and consistent with the terms of the PA, the Holder shall ensure Native American monitor(s) designated in consultation with the Consulting Tribes will be present within those sections identified in the Historic Properties Treatment Plan(s) as moderately to highly sensitive for prehistoric and historical archaeological deposits. The Historic Properties Treatment Plan(s) shall also outline the locations of monitoring, frequency and duration as well as the process to follow when monitoring results in an unanticipated discovery. Specifically, any unanticipated resources that are identified during monitoring shall be evaluated and treated in accordance with the requirements of the Historic Properties Treatment Plan(s) and the Programmatic Agreement for the Project (see Final EIS Appendix F-H). If human remains are discovered during monitoring, the regulatory requirements described in Mitigation Measure 11.9 shall be followed.
- 11.8.** The Holder shall ensure that all persons meeting the Secretary of the Interior's *Professional Qualifications Standards* who are supervising activities conducted as prescribed in the Programmatic Agreement for the Project (see Final EIS Appendix F-H) and all contracted field personnel, including construction workers, meet with one or more Consulting Tribes for a briefing on traditional customs and culturally sensitive protocols and procedures.
- 11.9.** As described in Stipulation III.G and Attachment E of the Programmatic Agreement for the Project (see Final EIS Appendix F-H), the FRA, in consultation with the cooperating agencies, Consulting Tribes, and the Holder, shall develop a Native American Graves Protection and Repatriation Act Plan of Action (NAGPRA POA).

The Holder shall ensure that if human remains are inadvertently discovered during archaeological investigation or construction activities, all ground disturbing activities will cease within 50 feet in all directions of human remains and the holder shall immediately notify BLM.

The holder shall treat human remains and grave goods in accordance with all appropriate state or federal laws. If the remains are found on state or private land within California, the FRA shall ensure the requirements of Public Resources Code (PRC) 5097 are met. If human remains are identified on state or private land within Nevada, the FRA shall ensure the requirements of Nevada Revised Statutes (Section 383.160) and (Section 383.170) are met.

- 11.10.** Consistent with Administrative Stipulation IV.B of the Programmatic Agreement for the Project (PA; see Final EIS Appendix F-H), the Holder shall submit to the FRA an annual report documenting the completion status of the stipulations outlined in the PA. The Annual Report shall include, at a minimum:
- a. A list of all studies, reports, actions, evaluations, or monitoring reviewed or generated under the Stipulations of this PA.



- b. Efforts to identify and/or evaluate potential historic properties, monitoring efforts, archaeological management assessments or research designs, and treatment of historic properties.
- c. Any recommendations to amend this PA or improve communications among the parties.
- d. A discussion of any inadvertent effects to historic properties occurring during the course of the year.

**11.11.** The Holder shall prepare quarterly progress reports on the status of project construction. As lead agency, FRA will be responsible for coordinating and submitting the report to Tribal representatives. The Quarterly report shall include, at a minimum, anticipated needs for Tribal representative monitors in the upcoming months.

**11.12.** Before ground-disturbing activities begin, the Holder shall retain a qualified paleontologist as defined by the SVP (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995) or other appropriate personnel (e.g., California licensed professional geologist with appropriate experience and expertise) to conduct further literature review and discussion with subject area experts in order to resolve the paleontological sensitivity of the geologic units identified in Table 3.7-2 as —undetermined— and the areas with strata of Holocene age exposed at the surface. If site-specific engineering geologic or geotechnical studies for the project identify additional units likely to be affected by project construction and not included in Table 3.7-2, they shall also be evaluated for paleontological sensitivity under this measure.

This information shall be used to guide mitigation requirements on a site-specific basis during construction and during maintenance activities that require ground disturbance, as follows.

- Mitigation Measures 11-11, 11-12, and 11-13 shall apply to all ground-disturbing construction and maintenance activities.
- Mitigation Measures 11-11 shall apply to all ground-disturbing construction activities that affect geologic units identified as highly sensitive for paleontological resources, and to all maintenance activities that would involve new or extended ground disturbance in highly sensitive units.

**11.13.** The holder shall ensure that all construction and maintenance personnel receive paleontological resources awareness training that includes information on the possibility of encountering fossils during construction; the types of fossils likely to be seen, based on finds in the site vicinity; and proper procedures in the event fossils are encountered.

Worker training will be prepared and presented by a qualified paleontologist as defined by the Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee (1995) or other appropriate personnel (e.g., California licensed

professional geologist with appropriate experience and expertise) experienced in teaching non-specialists. It may be delivered at the same time as other pre-planned construction worker education, or it may be presented separately.

- 11.14.** Full-time paleontological monitoring will be conducted for all ground-disturbing activities in portions of the proposed rail alignment and facilities with substrate materials identified as highly sensitive for paleontological resources (see Table 3.7-13 above). Full-time monitoring will also be required where Holocene materials overlie highly sensitive strata and site-specific investigations have identified the potential for project activities to involve the underlying sensitive strata.

A trained paleontological monitor will oversee all ground-disturbing activities that affect highly sensitive substrate materials, including vegetation removal, site preparation, construction grading and excavation, and any drilling for piers or pilings. Paleontological monitoring will consist of observing operations and periodically inspecting disturbed, graded, and excavated surfaces. The monitor will have authority to divert grading or excavation away from exposed surfaces temporarily in order to examine disturbed areas more closely, and/or recover fossils. The responsible paleontologist will coordinate with the construction manager to ensure that monitoring is thorough but does not result in unnecessary delays.

If additional personnel are needed for effective monitoring, the responsible paleontologist may train other consultant or in-house staff in paleontological monitoring. Once training is complete, individuals trained by the qualified paleontologist may then monitor the proposed project construction independently, and will have the same responsibilities as described above.

- 11.15.** If fossil materials are discovered during any project-related activity, including but not limited to project grading and excavation, all ground-disturbing work in the vicinity of the find will stop immediately until the responsible paleontologist can assess the nature and importance of the find and recommend appropriate treatment. Assessment will occur in a timely manner, and recommendations for treatment will be consistent with SVP guidelines (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995). Treatment may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may include preparation of a report for publication describing the finds. If no report is required, the holder will nonetheless ensure that information on the nature, location, and depth of all finds is readily available to the scientific community. The responsible paleontologist and all paleontological monitors will be empowered to temporarily halt or redirect the excavation equipment away from fossils to be salvaged.
- 11.16.** If fossil materials are discovered during project-related activities, the responsible paleontologist will determine whether recovery and curation is warranted, and will be empowered to confer with local area experts as needed to arrive at a determination. All materials warranting recovery will be stabilized on the site and then salvaged

consistent with currently accepted procedures and the prevailing standard of care for paleontological excavations. The responsible paleontologist will coordinate with the construction manager to ensure that specimen recovery proceeds in a timely manner.

Recovered fossils will be prepared for identification consistent with currently accepted procedures and the prevailing standard of care. They will then be identified by competent specialists, potentially including, but not necessarily limited to, the responsible paleontologist. If possible, identification will include genus, species, and, if applicable, subspecies. If species-level identification is not feasible, the maximum feasible level of specificity will be provided. The fossil assemblage will then be analyzed by stratigraphic occurrence and any other applicable parameters, such as size, taxa present, and/or taphonomic conditions. A faunal list will be developed.

Any specimens (fossils) of paleontological significance found during construction will be temporarily housed in an appropriate museum or university collection. If curation is required, the responsible paleontologist will develop appropriate curation agreements, consistent with applicable protocols and the prevailing standard of care.

The responsible paleontologist will prepare a final report that includes at least the following components:

- information on site geology and stratigraphy, including a stratigraphic column;
- a description of field and laboratory methods;
- a faunal list, with stratigraphy ranges/occurrences for each taxon;
- a concise discussion of the significance of the site and its relationship to other nearby and/or similar fossil localities;
- a list of references consulted during the project, including published geologic maps for the site and vicinity; and
- a complete set of field notes, field photographs, and any new geologic maps developed for or during the project.

Full copies of the final report, including any appended materials, will be put on file with any repository institution(s). Depending on the nature of the materials recovered, it may also be appropriate to prepare a report for publication in an appropriate peer-reviewed professional journal. Such publication will be at the discretion of the responsible paleontologist.

## **12.0 Hydrology and Water Quality**

- 12.1.** To protect water quality, permanent water quality treatment devices shall be installed. Examples of water quality best management practices (BMPs) may include a vegetated swale, traction sand traps, or settling basin to help remove sediments and nutrients. Such BMPs will be sized properly and designed by a registered professional engineer and will not allow untreated storm water runoff to reach the Mojave River or any washes along the alignment including the urbanized area of Las Vegas.

- 12.2.** The holder shall initiate construction activities with the installation of erosion control BMPs. Within design-build plans, the Holder shall identify specifications of BMPs for grading and erosion control that are necessary to reduce erosion and sedimentation. These BMPs shall be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. Standard erosion control measures, such as management, structural, and vegetative controls, shall be implemented for all construction activities that expose soil. BMPs to be implemented as part of this mitigation measure may include, but are not limited to, the following measures:

Temporary erosion control measures that would apply to construction of the stations, maintenance facilities and the rail (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas. Grass or other vegetative cover will be established on the construction site as soon as possible after disturbance. Erosion in disturbed areas will be controlled by grading so that direct routes for conveying runoff to drainage channels are eliminated.

The general contractors and subcontractors conducting the work will construct or implement, regularly inspect, and maintain the BMPs in the construction plans. Some methods of Construction BMPs for rail installation that will be included in the project are:

- Install erosion control material consisting of silt fences along the outside limits of construction on both sides of the disturbance corridor for track construction;
- Clear the construction area of brush and vegetation;
- Strip any topsoil and transport it to stockpile;
- Excavate material as required to extend any culverts using good quality material as fill and transport poor quality material to stockpile;
- Place quality fill material to establish the subgrade;
- Install the sub-ballast on the subgrade, composed of crushed rock that has sufficient strength to withstand settling from loads;
- Place standard rail ties, made of wood or concrete, on the sub-ballast, then place the rail on the ties, and anchor the rail to the ties;
- Bring in ballast and dump ballast rock between and along the sides of the track; and
- Use a tamper to raise the track and tamp the ballast beneath the ties.

- 12.3.** The holder shall obtain coverage under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. Implementing the requirements in the National Pollutant Discharge Elimination System Construction General Permit will reduce or eliminate construction-related water quality effects. The holder shall ensure that construction activities comply with the conditions in this permit, which will require preparation of a Storm Water Pollution Prevention Plan (SWPPP),

implementation of BMPs identified in the SWPPP, and monitoring to ensure that effects on water quality are minimized.

- 12.4.** Prior to beginning any construction activity, the holder shall develop a spill prevention, control, and countermeasure plan (SPCCP) to prevent accidental releases of chemicals that are stored on site and measures to use in the case of a spill. The BMPs described in this plan shall apply to construction activities and operation activities.

The Holder shall implement appropriate hazardous material management practices identified in the SPCCP to reduce the potential for chemical spills or releases of contaminants, including any non-storm water discharge to drainage channels. If a spill occurs, cleanup, containment, and response measures in the SPCCP shall be implemented by the Holder.

The federal reportable spill quantity for petroleum products, as defined at 40 CFR 110 is any oil spill that (1) violates applicable water quality standards, (2) causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or (3) causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

If a spill is reportable, a superintendent shall notify appropriate agencies and the contractor will need to take action to contact any other appropriate safety and clean-up crews to ensure the SPCCP is followed. A written description of reportable releases shall be submitted to the appropriate agency. This submittal shall include a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The release shall be documented on a spill report form.

- 12.5.** Most of the rail segments would not result in a large amount of impervious surface that could concentrate and redirect storm water flow causing onsite erosion. Runoff from the rail alignment would be captured and directed to existing designated drainage features. Where necessary, the Holder shall redesign and resize the existing drainage facilities to accommodate the potential increase in runoff along the rail alignment. The Preferred Alternative rail alignment shall connect with and mirror the existing culverts along the I-15 freeway. Where the rail alignment deviates from the I-15 freeway, the Holder shall install culverts at natural drainage features.

However, the stations and maintenance facilities would have parking lots that could concentrate and redirect storm water flows. In order to determine the adequate size of drainage facilities, the total increase in impervious surface of the design of the facilities shall be included in a Rational Method (a way of calculating flow intensity) calculation to determine the increase in peak storm discharges resulting from the action alternatives. The 100-year, 24-hour storm event shall be used to determine the appropriate size of drainage facilities needed for the action alternatives. Drainage

facilities shall retain flows and not contribute to additional flows in the Mojave River or other streams and washes. This could be achieved with several detention basins.

Drainage facilities for both the rail alignment and station and maintenance facilities will need to be sized accordingly to handle adequate flow. It is important to note that when a culvert is used, the footprint of the rail will need to be reinforced with rip-rap, and the culvert will need to be large enough to handle the 100-year 24-hour storm flow so on site flooding can be avoided. Other drainage features such as bridge crossings will need to be designed to not increase the size of the floodplain.

The Holder shall create either a new ephemeral drainage or restore, where feasible, through the reestablishment of former ephemeral drainages to compensate for temporary construction impacts to waters of the US. The Holder shall be required to comply with all conditions and mitigation requirements that result from the CWA Section 404 permit and Section 401 Certification.

- 12.6.** When Project features are located within the 100-year floodplain, the holder shall elevate the base elevation of rail and stations, including maintenance facilities or relocate them within the facility footprint or APE to avoid any impact. Portions of the rail alignment may utilize track support columns that are located in the 100-year floodplain. Specific engineering plans and modeling, using Hydraulic Engineering Centers-River Analysis System (HEC-RAS), or similar, shall be completed by a registered professional during the design-build process. Design-build Project plans shall incorporate all feasible recommendations of the HEC-RAS analysis.
- 12.7.** The Holder shall not store construction equipment or materials within the limits of influence that are located in areas of the 100-year floodplain so as to avoid redirecting 100-year flood flows that could cause structural damage or pose a safety risk to workers.
- 12.8.** During the design-build process for segment 1, the Victorville OMSF tracks and facilities shall be designed by the Holder to avoid or bridge over the two small washes that feed into the Bell Mountain Wash.
- 12.9.** During the design-build process, the Holder shall locate autotransformers 7 and 11 within the limits of influence to avoid Telephone Wash and Kali Ditch, respectively, and to avoid other water resources (applies to Segment 3 only).
- 12.10.** The holder shall obtain water from existing commercially available water sources during construction. The holder shall not develop new groundwater wells or surface water without subsequent environmental review as well as federal, state, and local permits as appropriate and legally required.

## **13.0 Geology and Soils**

- 13.1.** For segments 1, 2C and 3B, as well as all stations and facilities associated with these segments, the holder shall conduct a site specific, detailed evaluation, which includes surface reconnaissance and subsurface assessment, which shall be performed by a qualified geologist. The holder shall incorporate recommendations of this evaluation in the design build project plans. This evaluation shall be performed prior to construction so that, in the event a fault-rupture hazard exists, the holder can implement the recommendations of the geologist in the design build plans.
- 13.2.** For all rail alignments and all facilities, the holder shall conduct a site-specific evaluation of the potential ground shaking hazard, which shall be performed by a qualified geologist. The evaluation shall be performed during design development and prior to construction so that appropriate structural design and mitigation techniques can be incorporated into the design-build project plans. Evaluation techniques shall include drilling of exploratory borings, laboratory testing of soils, computer software analysis to develop seismic design parameters for use by the Project structural engineer. Recommendations of this evaluation that avoid or minimize impacts related to seismic ground shaking shall be incorporated into design-build project plans. The holder shall design structural elements of the rail system to resist or accommodate appropriate site-specific ground motions and to conform to the current seismic design standards. The holder shall also implement an earthquake early warning system as part of the project.
- 13.3.** For all rail alignments and all facilities, the holder shall conduct a site-specific evaluation of the potential liquefaction hazard, which shall be performed by a qualified geotechnical engineer during design development and prior to construction. This evaluation shall assess the liquefaction and dynamic settlement characteristics of the on-site soils and shall include drilling of exploratory borings, evaluation of groundwater depths, and laboratory testing of soils. The Holder shall incorporate recommendations of this evaluation that avoid or minimize impacts related to liquefaction into design-build Project plans.
- 13.4.** For Segments 1, 2C, and 3B, as well as all stations and facilities associated with these segments, the holder shall prepare a detailed hydrologic evaluation during design development and prior to construction. The evaluation shall be prepared by a qualified hydrologist to assess the risks and potential effects of inundation on project improvements. The hydrologic evaluation shall identify potential dam inundation hazards at site-specific locations and identify corresponding design recommendations to be incorporated into design-build project plans
- 13.5.** For all rail alignments and all facilities, the holder shall conduct site-specific geotechnical evaluations, which shall be performed by a qualified geologist during the preliminary design phase of the project to assess the settlement potential of the on-site natural soils and undocumented fill. Surface reconnaissance and subsurface evaluation shall be performed which addresses the potential settlement hazards. The evaluations shall include drilling of exploratory borings and laboratory testing of soils, in addition to surface reconnaissance to evaluate site conditions. Before

construction commences, the holder shall implement recommendations of the geotechnical evaluation into design-build Project plans.

- 13.6.** For all rail alignments and all facilities, the holder shall conduct subsurface evaluation for corrosive soils. Evaluation of corrosive soil potential shall be accomplished by testing and analysis of soils at design depths. Laboratory tests shall be conducted on the soils prior to construction and the results shall be reviewed by a qualified corrosion engineer. The qualified corrosion engineer shall prepare an improvement plan, which shall include corrosion protection measures suitable to the Project elements. The improvement plan shall include corrosivity tests to evaluate the corrosivity of the subsurface soils. Before construction commences, the holder shall implement recommendations of the improvement plan into design-build project plans.
- 13.7.** For all rail alignments and all facilities, the holder shall conduct site-specific subsurface evaluations, including laboratory testing to evaluate the extent of which expansive soils are present. A qualified geologist or soil scientist shall perform the evaluations. Where expansive soil conditions are found and would be detrimental to proposed improvements, before construction commences, the holder shall implement measures recommended by the geologist into design-build Project plans.
- 13.8.** For all rail alignments and all facilities in California and the Segment 5 rail alignment in Nevada, the holder shall further evaluate the potential for landslides and surficial slope failures along the proposed segments by conducting surface reconnaissance and subsurface evaluation, which shall be performed by a qualified geotechnical engineer during project design. Surface reconnaissance shall include visual observation of the earth units and geomorphology and review of geologic maps to evaluate the condition of slopes relative to the alignment. Subsurface exploration shall be performed as recommended by the qualified geotechnical engineer to evaluate the potential for landslides and surficial slope failures. If necessary, subsurface evaluation shall include the excavation and detailed logging of exploratory trenches, test pits, and/or borings as recommended by the qualified geotechnical engineer. Slope stability computer analyses shall be performed to address the stability of slopes where recommended by the qualified geotechnical engineer. Before construction commences, the Holder shall implement measures recommended in the evaluation into design-build Project plans.
- 13.9.** For all rail alignments and all facilities, the holder shall conduct a surface reconnaissance and subsurface evaluation, which shall be performed by a qualified geotechnical engineer to assess soil excavability. This evaluation shall include drilling of exploratory borings and/or test pits to evaluate ground conditions for excavation capability where recommended by the qualified geotechnical engineer. Before construction commences, the Holder shall implement measures recommended in the evaluation into design-build Project plans.



- 13.10.** For all rail alignments and all facilities, the holder shall assess groundwater conditions in the project area, which shall be performed by a qualified geotechnical engineer. Before construction commences, the holder shall implement measures recommended in the evaluation into design-build Project plans, so that in the event shallow groundwater is detected or suspected, appropriate mitigation techniques would be implemented.
- 13.11.** For Segment 4C, the holder shall perform excavations for underground structures (tunnels) with care to reduce the potential for lateral deflection of excavation sidewalls and/or shoring, which could also cause differential movement of structures located near the excavation. To reduce the potential for damage to improvements and structures resulting from dewatering operations, the holder shall monitor the ground surface and/or structures around the excavation for movement with a variety of instrumentation. If during the course of construction, the instrumentation detects ground movement that exceeds a pre-specified value, the holder shall stop work, the contractor's methods shall be reviewed by a qualified geotechnical engineer, and appropriate changes shall be made, if recommended by the geotechnical engineer. Typical monitoring methods include installation of ground survey points around the outside of the excavation to monitor settlement, placing monitoring points on nearby structures to monitor performance of the structures, and installation of inclinometers along the sides of the excavation to monitor lateral deflection of sidewalls.
- 13.12.** For Segments 5B and 6B as well as all associated facilities, the holder shall engage a qualified geologist to conduct further evaluation for the potential for ground fissures. This evaluation shall include surface reconnaissance and visual observation of the earth units, manmade features, and geomorphology, and review of geologic maps to evaluate the surface conditions relative to project features. Before construction commences, the holder shall incorporate recommendations of the evaluation into design-build Project plans.

## **14.0 HAZARDOUS MATERIALS**

- 14.1.** During the design-build process and prior to construction of Segment 6B and its related facilities, the holder shall conduct an evaluation of all buildings to be demolished to determine the presence of asbestos containing materials and lead based paint. Before demolition commences, the holder shall incorporate remediation consistent with the recommendations of these evaluations into design-build project plans.
- 14.2.** Prior to the start of demolition, grading, or construction, the holder shall prepare a soil monitoring plan and incorporate the recommendations of this plan into design-build project plans for implementation during all phases of construction. Disturbed soils shall be monitored for visual evidence of contamination (e.g., staining or discoloration). The Holder shall monitor soil for the presence of volatile organic compounds (VOC) using appropriate field instruments such as organic vapor measurement with photoionization detectors (PIDs) or flame ionization detectors. If

the monitoring procedures indicate the possible presence of contaminated soil, a contaminated soil contingency plan shall be implemented that shall include procedures for segregation, sampling, and chemical analysis of soil. The holder shall profile contaminated soil for disposal and transport with appropriate hazardous or non-hazardous waste manifests by a state-certified hazardous material hauler to a state-certified disposal or recycling facility licensed to accept and treat the type of waste indicated by the profiling process. The holder shall develop and implement a contaminated soil contingency plan during all construction activities. In the unlikely event that these processes generate any contaminated groundwater that must be disposed of outside of the dewatering/ National Pollutant Discharge Elimination System (NPDES) process, the Holder shall be profile, manifest, haul, and dispose of groundwater in the same manner.

Where conditions warrant a Phase II Environmental Site Assessment (ESA), the Holder shall include the following in the ESAs:

- A work plan that includes the numbers and locations of proposed soil borings/monitoring wells, sampling intervals, drilling and sampling methods, analytical methods, sampling rationale, site geohydrology, field screening methods, quality control/quality assurance, and reporting methods.
- A site-specific Health and Safety Plan (HSP) signed by a Certified Industrial Hygienist.
- Necessary permits for encroachment, boring completion, and well installation.
- A traffic safety plan.
- Sampling program (fieldwork) in accordance with the work plan and HSP. Fieldwork shall be completed under the supervision of a geologist registered in the State of California and/or Nevada, as appropriate.
- Hazardous materials testing through a laboratory certified by California and/or Nevada.
- Documentation to include field procedures, boring logs/well diagrams, tables of analytical results, cross-sections, an evaluation of the levels and extent of contaminants found, and conclusions and recommendation regarding the environmental condition of the site and the need for further assessment. Recommendations may include additional assessment or handling of the contaminants found through the contaminated soil contingency plan. If the contaminated soil contingency plan is inadequate for the contamination found, a remedial action plan shall be developed. Contaminated groundwater shall generally be handled through the NPDES/dewatering process.
- Disposal process including transport by a state-certified hazardous material hauler to a state-certified disposal /recycling facility licensed to accept/treat the identified waste.

Where contaminated groundwater is encountered, the holder shall obtain a NPDES permit prior to the issuance of a Notice to Proceed. The NPDES permit shall specify site specific testing and monitoring requirements and discharge limitations.

Additionally, available agency files for moderate and high-risk properties as discussed in this section and identified in Appendix I, shall be reviewed prior to demolition, grading, or construction. If the file review indicates a low likelihood of contaminants being present beneath or adjacent to a project feature (rail alignment, station, maintenance facility, etc.), additional assessment/mitigation may not be recommended, and the property could be reclassified as low risk.

- 14.3.** Prior to the start of construction activities, the holder shall prepare a hazardous materials contingency plan addressing the potential for discovery of unidentified underground storage tanks, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes during construction. This contingency plan shall address underground storage tank decommissioning, field screening, and materials testing methods, mitigation and contaminant management requirements, and health and safety requirements. The holder shall incorporate the recommendations of this plan into design-build project plans.
- 14.4.** The holder shall dispose of all hazardous or solid wastes and debris encountered or generated during construction and demolition activities in accordance with all applicable federal regulations.
- 14.5.** The holder shall prepare a Hazardous Materials Management Plan for all facilities that use, store, or dispose of hazardous materials. Facilities emitting toxic air emissions shall submit inventories and plans to the appropriate air quality management district and be subject to permitting and monitoring regulations of the district. The holder shall obtain all necessary local, state, and federal permits for the installation and operation of any above or below ground chemical or fuel storage tanks prior to installing such tanks.

## **15.0 Air Quality**

- 15.1.** Prior to the commencement of construction of all rail alignments and facilities within the State of California, the Holder shall implement the following control measures consistent with the MDAQMD Rule 403.2 (Fugitive Dust Control for the Mojave Desert Planning Area), including recordation of all measures into design-build Project plans:
  - Use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emissions. Use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance;
  - Take actions sufficient to prevent project-related trackout onto paved surfaces;
  - Cover loaded haul vehicles while operating on publicly maintained paved surfaces;
  - Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than 30 days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions;

- Clean up project-related trackout or spills on publicly maintained paved surfaces within 24 hours; and
- Reduce nonessential earth-moving activity under high wind conditions. A reduction in earth-moving activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance.

**15.2.** Prior to the commencement of construction of all rail alignments and facilities within the State of Nevada, consistent with Section 94 of Clark County Air Quality Guidelines, the Holder shall compile a Dust Mitigation Plan that is consistent with measures identified in the DAQEM Construction Activities Dust Control Handbook (included by reference in Section 94 of the Clark County Air Quality Regulations) and Desert Tortoise protective measures, and a Dust Control Permit shall be secured from the DAEQM. The Dust Control Plan may include the following measures, among other measures, all of which shall be incorporated into design-build Project plans:

- Use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emissions;
- Take actions sufficient to prevent project-related trackout onto paved surfaces;
- Cover loaded haul vehicles while operating on publicly maintained paved surfaces;
- Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than 30 days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions;
- Clean up project-related trackout or spills on publicly maintained paved surfaces within 24 hours; and
- Reduce nonessential earth-moving activity under high wind conditions.

**15.3.** The Holder shall integrate the following control measures into approved design-build plans:

- All off-road internal-combustion engine construction equipment shall be EPA Tier-4 certified.
- All signal boards shall be solar-powered.
- All architectural coatings products shall contain no more than 250 grams of VOC per liter of coating (2.08 pounds per gallon).
- For all work conducted within Clark County, only the following fuels shall be used to power off-road equipment:
- A composite fuel blend consisting of at least 20 percent biodiesel.

## **16.0 Noise and Vibration**

**16.1.** The holder shall install noise barriers at least four feet in height along the at grade portions of the rail alignment and on the elevated structures to reduce severe noise

impacts. The noise barriers shall be installed prior to the commencement of train operations along the rail alignment to reduce adverse noise effects.

This is a common approach to reducing noise impacts from surface transportation sources. The primary requirements for an effective noise barrier are that (1) the barrier must be high enough and long enough to break the line-of-sight between the sound source and the receiver, (2) the barrier must be of an impervious material with a minimum surface density of four pounds per square foot and (3) the barrier must not have any gaps or holes between the panels or at the bottom. Because numerous materials meet these requirements, the selection of materials for noise barriers is usually dictated by aesthetics, durability, cost, and maintenance considerations.

The holder shall install noise barriers meeting the above criteria at the locations identified in the Final EIS (A list of these locations was provided as Final EIS Table F-3.12-5; an illustration of the locations of these barriers was provided in Final EIS Figures F-3.12-1 through F-3.12-3).

- 16.2.** To reduce severe noise impacts, the Holder shall locate crossovers away from residential area where feasible, or use spring-rail or moveable point frogs in place of standard rigid frogs at turnouts where relocation is not feasible. Because the impacts of wheels over rail gaps at track crossover locations, or turn-outs for passing tracks, increases vibration by about 6 dBA, crossovers are a major source of vibration noise impact when they are located in sensitive areas. If crossovers cannot be relocated away from residential areas, another approach is to use spring-rail or moveable point frogs in place of standard rigid frogs at turnouts. These devices allow the flangeway gap to remain closed in the main traffic direction for revenue service trains. The holder shall incorporate these measures into the design-build project plans.
- 16.3.** Where sensitive receptors would be dispersed or limited in nature, the Holder may choose install building sound insulation rather than implementing noise barriers defined under Mitigation Measure NV-1 to mitigate severe noise impacts. Sound insulation to improve the outdoor-to-indoor noise reduction has been widely applied around airports and has seen limited application for rail projects. Although this approach has no effect on noise in exterior areas, it may be the best choice for sites where noise barriers are not feasible or desirable, and for buildings where indoor sensitivity is of most concern. Substantial improvements in building sound insulation (on the order of 5 to 10 dBA) can often be achieved by adding an extra layer of glazing to the windows, by sealing any holes in exterior surfaces that act as sound leaks, and by providing forced ventilation and air-conditioning so that windows do not need to be opened.
- 16.4.** Where sensitive receptors would be dispersed or limited in nature, the holder may choose to implement property acquisitions or easements rather than Stipulation 16-1 to mitigate severe noise impacts. The holder may purchase residences likely to be impacted by train operations or to acquire easements for such residences by paying the homeowners to accept the future train noise conditions. These approaches are

usually taken only in isolated cases where other mitigation options are infeasible, impractical, or too costly.

**16.5.** The Holder shall develop specific residential property line noise limits that comply with applicable local noise regulations to the extent feasible during the design-build process, include these noise limits in the construction specifications for the Project, and perform noise monitoring during construction to verify compliance with the limits. This approach allows the contractor flexibility to meet the noise limits in the most efficient and cost-effective manner. Noise control measures that would be applied as needed to meet the noise limits include the following:

- Avoiding nighttime construction in residential neighborhoods.
- Using specially quieted equipment with enclosed engines and/or high-performance mufflers.
- Locating stationary construction equipment as far as possible from noise-sensitive sites.
- Constructing noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers.
- Re-routing construction-related truck traffic along roadways that will cause the least disturbance to residents.
- Avoiding impact pile driving near noise-sensitive areas, where possible. Drilled piles or the use of a sonic or vibratory pile driver are quieter alternatives where the geological conditions permit their use. If impact pile drivers must be used, their use will be limited to the periods between 8:00 AM and 5:00 PM on weekdays.

With the incorporation of the appropriate noise mitigation measures, impacts from construction-generated noise should not be adverse. To provide added assurance, the Holder shall institute a complaint resolution procedure to rapidly address any noise problems that may develop during construction.

## **17.0 BIOLOGICAL RESOURCES**

**17.1.** Prior to the commencement of grading activities, the Holder shall ensure all personnel working within the Project area attend an environmental awareness training program. The program will be presented by biologists authorized by the United States Fish and Wildlife Service (hereafter “authorized biologists”) and include information on the life history of the desert tortoise, the legal protection it is afforded by the Endangered Species Act, the definition of take for listed species, measures to protect the desert tortoise, reporting requirements, specific measures that each worker will need to employ to avoid adverse impacts on desert tortoises, a detailed description of environmental Project commitments as described in the decision records (i.e., record of decision), right-of-way grants, and biological opinion, and penalties for violation of federal and state environmental laws.

- 17.2.** The Holder shall ensure an authorized biologist will be on site during any construction activity within or near desert tortoise habitat to ensure the implementation and compliance of environmental commitments and avoidance measures.
- 17.3.** The Holder shall ensure the authorized biologists have the authority to stop work if dangers to desert tortoises arise, and to allow work to proceed after the hazard has been removed. The Holder shall notify the Southern Nevada and Ventura United States Fish and Wildlife Offices, BLM Offices, and the California Department of Fish and Game of any desert tortoise injury or death resulting from Project-related activities.
- 17.4.** The Holder shall ensure, as part of the monitoring, that an authorized biologist checks construction areas immediately before construction activities each day to ensure that no desert tortoise has moved into the construction area. If desert tortoises are discovered within the construction area, the authorized biologist shall relocate the desert tortoises to adjacent habitat approximately 300 feet from the limit of disturbance (i.e., beyond the 162.5-foot temporary construction area).
- 17.5.** The Holder will ensure the authorized biologists properly implement protective measures, records and reports desert tortoise and sign observations in accordance with approved protocol, reports incidents of noncompliance in accordance with the biological opinion and other relevant permits and authorizations, and moves desert tortoises from harm's way and place these animals in adjacent habitat approximately 300 feet of the limit of disturbance.
- 17.6.** The Holder shall confine all construction activities to the designated work areas. Grubbing of vegetation will only be done to the extent necessary for construction and will be limited to areas designated for that. Overnight parking and storage of equipment and materials will be limited to previously disturbed areas or areas identified in the BLM right-of-way grant.
- 17.7.** The Holder shall restrict all vehicle traffic to existing paved roads and the Project alignment within the permanent or temporary construction area. Disturbance beyond the construction area would be prohibited except in emergencies.
- 17.8.** The Holder shall not allow speeds in excess of 15 miles per hour for construction vehicles within sensitive species habitat.
- 17.9.** The Holder shall implement a litter control program during construction. The program will include the use of covered, common raven proof trash receptacles, daily removal of trash from work areas to the trash receptacles, and proper disposal of trash in a designated solid waste disposal facility. Precautions will also be taken to prevent trash from blowing out of construction vehicles.

- 17.10.** The Holder will promptly remove all road killed animals within the Project construction area and the permanent rail alignment to reduce the adverse effects associated with predation of desert tortoise by common ravens (*Corvus corax*).
- 17.11.** The Holder will not permit pets or firearms in the work area.
- 17.12.** The Holder shall take both pre and post construction photographs to document sensitive habitat conditions within the limits of Project disturbance.
- 17.13.** During construction, the Holder will perform weekly inspections and weed removal/control during the growing season of all construction areas, rail alignment, and facilities. Following the completion of construction activities, from March through August, the Holder will continue monitoring and removal monthly during the first 2 years of operation and quarterly for the life of the facility. Weed removal and control will consist of physical control methods (e.g., hand pulling, hoeing, etc.) or, if approved by the authorized officer, herbicide application. A provision of this measure requires preparation of an invasive weed monitoring and treatment plan that would be applicable to all lands affected by the proposed action. This weed control plan will be developed in cooperation with FRA and BLM to ensure that weed control and removal activities do not affect desert tortoises. The use of herbicides to control weeds within the Project construction and operation area will be coordinated with biologists of the BLM, the California Department of Fish and Game, and the Nevada Department of Wildlife to ensure the application does not affect desert tortoises. In instances where desert tortoises may come into contact with herbicide, the plan will require manual removal of individual plants. The FRA will ensure the same methods and caution will occur on lands within the action area that are outside of those managed by the BLM.
- 17.14.** The Holder shall develop and implement vegetation and topsoil removal and restoration plan to reduce impacts on biological resources. The plan shall include a requirement for the Holder to remove and stockpile construction area topsoil prior to initiating construction and replaced within areas of temporary disturbance once construction is complete. Any permanent topsoil stabilization measures will be constructed and maintained within the permanent right-of-way. These measures may include, but are not limited to, the use of geo-textile mats or rip-rap to in areas of high erosion potential.
- 17.15.** The Holder shall install and maintain rice wattles, straw wattles, and silt fencing along all construction areas to prevent sediment from being transported off of the right-of-way during construction. The Holder shall employ permanent stabilization measures upon completion of construction along washes and in other areas of potential erosion.
- 17.16.** To minimize adverse effects to the desert tortoise, the Holder will fence the boundary of the Victorville Passenger Station and the Victorville OMSF with permanent desert tortoise exclusion fencing. The Holder shall install desert tortoise guards at gated



entries to prevent desert tortoises from gaining entry to the Project sites. The Holder shall also fence the TCAs, the Baker MOW facility, autotransformers sites and substations, the construction areas for the utility corridors, and the rail alignment's temporary construction area, with temporary desert tortoise fencing prior to clearance surveys and ground disturbance. Proposed construction sites along the alignment that are not located in desert tortoise habitat (i.e., within Barstow, Baker, and Las Vegas) will not be fenced.

- 17.17.** To ensure the clearance of all desert tortoises from all potential habitat areas, the Holder shall conduct clearance surveys using service-authorized desert tortoise biologists as required by the Service.
- 17.18.** The Holder shall include the installation of temporary desert tortoise fencing around the perimeter prior to the commencement of onsite construction as part of desert tortoise relocation from the Project area. Installation of the fencing will be monitored by an authorized biologist to ensure that desert tortoises are not killed or injured during this activity. Temporary desert tortoise fencing will be installed in areas of construction that are beyond the perimeter of the right-of-way or in areas where construction staging will occur. Desert tortoise guards will be installed at construction area entry points and permanent rail alignment maintenance access points. After installation, the fence will be regularly inspected to ensure its integrity. The Holder will ensure that cross country travel for construction purposes outside of the areas of desert tortoise fencing is prohibited.
- 17.19.** In areas where high vehicular construction traffic is expected (such as TCAs), desert tortoise exclusionary fencing may require the supplemental use of a desert tortoise guard. Locations of such guards will be determined by an authorized biologist. This device resembles a cattle guard and is positioned at ground level and connected to the exclusionary fencing to prohibit desert tortoise from crossing into the construction area but allowing the passage of construction vehicles. The guard would be maintained throughout its use during the construction process by the Holder. Such maintenance would require the presence of an authorized desert tortoise biologist. The guard would have a clear escape route away from construction activity for any desert tortoise that should fall into the guard. The guard would be inspected daily for desert tortoise and to ensure the escape route is free of obstruction. The guard would also be cleared of debris that may allow desert tortoise passage across the guard and into a construction area.
- 17.20.** The Holder shall ensure only biologists authorized by the Service will handle desert tortoises and follow the guidelines within the Desert Tortoise Field Manual. Desert tortoises found within the Project area will be removed and relocated to undisturbed suitable habitat beyond the construction site and within their own territory, where they may be familiar with alternate burrows. If no burrows are available, the Holder shall create artificial burrows following the guidelines within the Desert Tortoise Field Manual.

- 17.21.** After installation of the temporary fencing, the Holder shall survey the entire Project area for desert tortoises. The survey shall be conducted by an authorized biologist. Following the procedures and precautions outlined in the Desert Tortoise Field Manual, all desert tortoise pallets and burrows within the survey areas will be examined and excavated by hand, either by or under the direct supervision of an authorized biologist, and collapsed to prevent reentry
- 17.22.** The Holder shall ensure an authorized biologist will be present during all initial top soil removal, blading, or grading activities within the Project area. During Project implementation, the Holder shall ensure all workers will inform the authorized biologist if a desert tortoise is found within or near Project areas. All work in the vicinity of the desert tortoise, which could injure or kill the animal, will cease and it will be observed until it is moved from harm's way by the authorized biologist.
- 17.23.** Workers will inspect for desert tortoises under vehicles and equipment before such equipment is moved. If a desert tortoise is present, the worker will wait for it to move out from underneath the vehicle or the authorized biologist will be contacted to remove it.
- 17.24.** The Holder will replace any previously installed permanent desert tortoise exclusionary fencing along Interstate 15 that is removed during Project construction.
- 17.25.** The Holder shall implement minimization measures for potential impacts to downstream habitat from Segment 4C (if constructed), which may include the use of tunnels, aerial crossing structures, at-grade overcrossing structures, and culverts. At a minimum, the Holder shall avoid all ephemeral drainages equal to or greater than 4 feet wide with these types of structures. Where tunnels and aerial crossing structures would be used, drainages less than 4 feet in width would also be avoided. If support piles or piers are necessary to support over crossing structures these structures would be located outside of the drainage being over crossed. Authorized biologists would be present during construction to ensure impacts to drainages are avoided or, where an impact is unavoidable, ensure the impact is minimized and the natural substrate of the drainage that has been disturbed is re-established to original grade and with natural substrate materials within the drainage channel. In addition to the ephemeral drainages over crossed, drainages established (created) or re-established as part of the Project's compensatory mitigation for replacement of affected waters of the United States or State of California would be monitored by an agency-approved biologist for a minimum of 5 years to ensure that agency-approved performance standards are met.
- 17.26.** In addition to habitat restoration, the Holder will compensate for habitat disturbance through payment of a per-acre fee for disturbance of desert tortoise habitat in California and Nevada. These funds will be paid to the BLM and used for management actions expected to provide a benefit to the desert tortoise over time. Actions may involve habitat acquisition, population, or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species' current status and trends, and preserving

distinct population attributes. Specific actions to be funded will be determined during annual meetings between the BLM and the United States Fish and Wildlife Service to identify and prioritize management actions, which may include implementation of range wide monitoring of desert tortoises.

- 17.27.** To ensure that the measures proposed by the FRA and the Holder are effective and are being properly implemented, the FRA or the Holder must contact the United States Fish and Wildlife Service (USFWS) immediately if it becomes aware that a desert tortoise has been killed or injured by Project activities. At that time, the Holder, in coordination with the FRA, must review the circumstances surrounding the incident with the USFWS to determine whether additional protective measures are required. Project activities may continue during the review, provided that the proposed protective measures in the Project description and any appropriate terms and conditions of this biological opinion have been and continue to be fully implemented.

If five desert tortoises are injured or killed as a result of construction of the Project, the FRA shall re-initiate consultation on the Project, pursuant to the implementing regulations for section 7(a)(2) of the Endangered Species Act at 50 Code of Federal Regulations 402.16.

- 17.28.** If two desert tortoises are injured or killed as a result of operation and maintenance of the Project in any calendar year, the FRA shall re-initiate consultation on the Project, pursuant to the implementing regulations for section 7(a)(2) of the Endangered Species Act at 50 Code of Federal Regulations 402.16.
- 17.29.** The Holder shall monitor, during construction and operation, the integrity of all desert tortoise exclusion fencing on a regular basis and following any rain events that result in surface flow of water in washes within the action area.
- 17.30.** The Holder shall use culverts that allow effective passage of desert tortoises but are large enough that desert tortoises are unlikely to use the culverts as burrows. The United States Fish and Wildlife Service has estimated that any box culvert must be 3 feet on a side and pipe culverts 3 feet in diameter and recommends that box culverts be used because desert tortoises are less likely to use them as burrows. At a minimum, culverts would need to be large enough. The Holder shall ensure regular maintenance of the culverts so desert tortoises do not use accumulated debris to construct burrows. If a culvert under the rail line is tied to an existing culvert under Interstate 15 or the Union Pacific Railroad, the Holder, with approval from the FRA, may forego these specifications if they are incompatible with the existing culverts.
- 17.31.** The Holder shall use culverts that will not entrap desert tortoises or block their passage. Specifically, all erosion control devices must be constructed and maintained in a manner that allows desert tortoises to enter and leave them freely.

- 17.32.** The Holder shall install a sufficient number of culverts in Segment 2C where it deviates from Interstate 15 (excluding on the dry lake bed); to ensure any desert tortoise whose home range occurs across the action area could continue to access both sides easily. In general, the distance between culverts must be no greater than 0.25 mile unless topography is an obstacle.
- 17.33.** The Holder shall ensure authorized biologists survey areas that could become isolated from the main body of habitat where the alignment deviates slightly from the freeway (e.g., at off-ramps). If desert tortoises are present and construction of the Project may disrupt their behavior or if a culvert or other access to the main body of habitat does not exist or will not be provided, the authorized biologist must relocate them to the side of the rail line that is adjacent to the main body of habitat. In any event of uncertainty, the authorized biologist must contact the Service for guidance prior to moving the desert tortoise; during this time, the authorized biologist may install fencing around the area of the desert tortoise's burrow so he or she may find it again.
- 17.34.** The Holder shall design all new utility lines and ancillary structures associated with the Project in a manner that will reduce the likelihood of nesting by common ravens. The Holder, as appropriate, must monitor these utility lines and ancillary structures to ensure the effectiveness of their measures and implement adaptive management, in coordination with the Service, if the initial measures are unsuccessful. The Holder must ensure that any common ravens nests established on new utility lines and ancillary structures are removed within one year at a time when they are inactive.
- 17.35.** During construction of the Segment 4C rail line (if constructed), if desert tortoises that have been translocated from the Ivanpah solar plant site need to be moved from harm's way, the Holder shall coordinate their capture and movement with the BLM to ensure that the health and welfare of these animals is not compromised. Prior to the onset of construction, the Holder must contact the BLM to establish appropriate protocols to follow in the event these animals are encountered.
- 17.36.** By January 31 of any year the proposed action is under construction and during its operation, the FRA must provide a report to the United States Fish and Wildlife Service (USFWS) that provides details on the effects of the action on the desert tortoise. Within 60 days of the completion of the proposed action, the FRA must provide a summary report that provides, in addition to the following information, a complete overview of the amount of habitat disturbed and the number of desert tortoises that were taken. The Holder shall furnish all of these reports to the FRA no less than 15 days prior to the required USFWS submittal. These reports shall include information on any instances when desert tortoises were killed, injured, or handled, the circumstances of such incidents, and any actions undertaken to prevent similar instances from re-occurring. In addition, the reports should include any recommendations that would facilitate the implementation of the protective measures while maintaining protection of the desert tortoise and the names of any monitors who assisted the authorized biologist and an evaluation of the experience they gained on the Project.

**17.37.** Within 3 days of locating any dead or injured desert tortoises, the Holder, in coordination with the FRA, shall notify the Ventura Office of the United States Fish and Wildlife Service by telephone (805 644-1766) and by facsimile (805 644-3958) or electronic mail and the authorized officer. The report must include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

**17.38.** The Holder shall take care in handling dead desert tortoises to preserve biological material in the best possible state for later analysis. If desert tortoises are killed by Project activities, the United States Fish and Wildlife Service will instruct the Holder regarding the final disposition of the carcass.

Injured desert tortoises must be taken to a qualified veterinarian for treatment. If any injured desert tortoises survive, FRA or DesertXpress must contact the Service regarding their final disposition. DesertXpress must develop and maintain, for the duration of the project, a list of veterinarians qualified to work with desert tortoises.

FRA and DesertXpress must take care in handling dead desert tortoises to preserve biological material in the best possible state for later analysis. If desert tortoises are killed by project activities, the Service will instruct the FRA or DesertXpress regarding the final disposition of the carcass.

**17.39.** The holder shall ensure all personnel working within the Project area attend an environmental awareness training program. The program shall be presented by authorized biologists and include information on the life history of special-status species that may be encountered during construction activities, the legal protection for each species, the definition of “take” for listed species, measures to protect special-status species, reporting requirements, specific measures that each worker shall need to employ to avoid adverse effects to individual sensitive species, a detailed description of environmental Project commitments as described in the decision records (i.e. Record of Decision), right-of-way grants, and Biological Opinion, and penalties for violation of federal and state environmental laws.

**17.40.** The holder shall undertake preconstruction surveys for special-status species; these surveys shall be conducted by qualified biologists (i.e., one or more third party contractor(s) approved by the United States Fish and Wildlife Service (USFWS)) prior to the start of construction. Preconstruction surveys shall be tailored for specific species based on the species biology, natural history, and regulatory requirements. The locations for any individual or population of sensitive species within the limit of disturbance shall be documented with a GPS unit and reported to the state and federal regulatory agencies.

Mohave ground squirrel surveys are only valid for 12 months. Therefore, they shall be done no more than 12 months prior to the start of construction in a particular area.

If no Mohave ground squirrels are found during the surveys, no additional mitigation would be required.

Mojave fringe-toed lizard surveys shall occur no more than 24 hours prior to the start of construction. Surveys shall be conducted within the work area and a 100-foot buffer. Any Mojave fringe-toed lizards observed in the work area shall be allowed to move out of the work area. Those that become trapped in the work area shall be captured and moved to nearby suitable habitat outside of the work area.

Qualified biologists shall conduct preconstruction surveys for banded gila monsters no more than 24 hours prior to the start of construction within all suitable habitat in Segments 3 and 4. Surveys shall be conducted within the work area and a 100-foot buffer. Any gila monsters observed within the work areas shall be allowed to move out of the work area and those that become trapped within the work area shall be carefully moved to nearby suitable habitat. The handler shall have the necessary permit from the California Department of Fish and Game (CDFG) to handle and move lizards.

Qualified biologists shall conduct preconstruction surveys for BLM-sensitive and Clark County multiple-species habitat conservation plan (MSHCP) covered reptile species no more than 48 hours prior to the start of construction. Surveys shall be conducted within the work area and include a 100-foot buffer. Any sensitive reptile species observed within the work areas shall be allowed to move out of the work area and those that become trapped within the work area shall be very carefully moved to nearby suitable habitat.

The Applicant shall implement the following measures, to avoid disturbance of tree, shrub- or ground-nesting special-status and migratory birds and raptors:

- If construction activities are scheduled to occur during the breeding season (generally between March 1 and August 15), a qualified wildlife biologist shall conduct focused nesting surveys within the appropriate habitat and an appropriate buffer distance up to 0.25 mile from the limit of Project disturbance for nesting raptors.
- The focused surveys shall include tree- and shrub-nesting birds, ground-nesting birds, and cliff-nesting birds. The surveys shall be conducted within the two-week period before initiation of construction activities in a particular area between March 1 and August 15. If no active nests are detected, then no additional mitigation would be required.
- Follow-up surveys shall be required on a monthly basis during the breeding season. If surveys indicate that active nests are present in any areas that would be directly affected by construction activities, a no-disturbance buffer would be established around the site to avoid disturbance or destruction of the nest site until after a wildlife biologist determines that the young have fledged (usually late June to mid-July). The extent of these buffers shall be determined by a wildlife biologist in consultation with the California Department of Fish and Game

(CDFG) in California and the Nevada Department of Wildlife (NDOW) in Nevada and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors shall be analyzed to make an appropriate decision on buffer distances.

A qualified biologist shall conduct preconstruction surveys for active burrows according to CDFG guidelines for burrowing owl (1993 and 1995). The preconstruction surveys shall be conducted by a qualified biologist within the work area and include a 250-foot buffer and within the 2-week period before initiation of construction activities to locate active burrowing owl burrows. The preconstruction surveys shall include a nesting season survey and a wintering season survey the season immediately preceding construction. If no burrowing owls are detected, no further mitigation would be required.

Focused surveys for the presence of sensitive bat species shall be conducted in areas that provide suitable roosting or nursery habitat. If a roosting site is active and cannot be avoided, the Applicant shall consult with a bat expert in conjunction with the CDFG in California and the NDOW in Nevada to develop appropriate exclusion methods. If it is determined that a nursery sites is active and cannot be avoided, construction activities that would disturb the nursing bats shall be delayed until the breeding cycles for the bats are completed. The Applicant shall consult with a bat specialist in order to determine when the breeding cycle for bats. The Applicant shall document the results of any exclusion or avoidance of roosting/nursery sites for bats.

Qualified biologists shall conduct preconstruction surveys for American badger no more than 48 hours prior to the start of construction. Surveys shall be conducted within the work area and a 100-foot buffer. Any American badgers observed in the work area shall be allowed to leave the work area.

Construction activities conducted within suitable desert bighorn sheep habitat in the Mountain Pass area of the Project shall not occur during the period of the year when desert bighorn sheep are lambing (from January 1 to April 30). If construction activities must occur during the desert bighorn sheep lambing period, pre-construction surveys for lambing desert bighorn sheep shall be conducted prior to construction. If lambing desert bighorn sheep are found, then the Applicant shall consult with the BLM and the CDFG to identify appropriate avoidance measures.

Qualified botanists shall conduct preconstruction surveys for sensitive botanical species and invasive, non-native weed species prior to initiating construction of the Project. If sensitive botanical species are observed within the temporary construction area of effect, avoidance and minimization measures shall be applied by the Applicant.

Temporary environmental fencing shall be installed around sensitive biological resources prior to the commencement of on-site Project construction in order to avoid

unnecessary adverse effects to the resource. USFWS- and BLM-approved desert tortoise exclusionary fencing shall be erected by an authorized biologist within portions of the Project that occur in desert tortoise habitat. Temporary desert tortoise fencing shall be installed in areas of construction that are beyond the perimeter of the right-of-way or in areas where construction staging would occur. This includes fencing all work areas, temporary equipment and vehicle yards, and material staging and storage areas. Desert tortoise exclusionary fencing and clearance surveys shall be undertaken no more than 10 days prior to initiating construction activities. After installation of the temporary fencing, the entire Project area shall be surveyed for desert tortoises by an authorized biologist. Following the procedures and precautions outlined in the Desert Tortoise Council's guidelines, all desert tortoise pellets and burrows within the survey areas shall be examined and excavated by hand, either by or under the direct supervision of an authorized biologist, and unoccupied features collapsed to prevent re-entry. After installation, the fence shall be regularly inspected to ensure its integrity. Desert tortoise encountered during preconstruction surveys shall be relocated off the Project ROW based on a USFWS, BLM, and CDFG-approved Project-specific Desert Tortoise Relocation Plan. At a minimum, the Desert Tortoise Relocation Plan shall require the desert tortoises found within the Project area be removed to undisturbed areas beyond the construction site and relocated within their own territory where they may be familiar with alternate burrows. If no natural burrows are available, artificial burrows shall be created following the Desert Tortoise Council's guidelines. Only biologists authorized by the USFWS shall handle desert tortoises and shall follow the guidelines established by the Desert Tortoise Council.

The Applicant shall install and maintain permanent exclusionary fencing along the open portion of the rail alignment in areas of suitable bighorn sheep habitat. The fencing shall be constructed to ensure that bighorn sheep cannot access the rails or any culverts/tunnels. In addition, prior to initiating construction, unoccupied features collapsed to prevent re-entry. After installation, the fence shall be regularly inspected to ensure its integrity. Desert tortoise encountered during preconstruction surveys shall be relocated off the Project ROW based on a USFWS, BLM, and CDFG-approved Project-specific Desert Tortoise Relocation Plan. At a minimum, the Desert Tortoise Relocation Plan shall require the desert tortoises found within the Project area be removed to undisturbed areas beyond the construction site and relocated within their own territory where they may be familiar with alternate burrows. If no natural burrows are available, artificial burrows shall be created following the Desert Tortoise Council's guidelines. Only biologists authorized by the USFWS shall handle desert tortoises and shall follow the guidelines established by the Desert Tortoise Council.

The Applicant shall install and maintain permanent exclusionary fencing along the open portion of the rail alignment in areas of suitable bighorn sheep habitat. The fencing shall be constructed to ensure that bighorn sheep cannot access the rails or any culverts/tunnels. In addition, prior to initiating construction.



**17.41.** The holder shall implement the following measures during Project construction:

- Qualified biologists shall be on site during any construction activity within or near special-status species habitat to ensure the implementation and compliance of environmental commitments and avoidance measures.
- The qualified biologist shall have the authority to stop work if dangers to desert tortoises or other special-status wildlife species arise and allow work to proceed after the hazard has been removed. The USFWS Las Vegas and Ventura Ecological Services Offices, BLM Field Offices and CDFG shall be notified of any desert tortoise injury or death resulting from project-related activities. In addition, the USFWS Division of Law Enforcement shall also be notified in accordance with reporting requirements.
- As part of the monitoring, the biologists shall check construction areas immediately before construction activities each day to ensure that no special-status wildlife species have moved into the construction area. If tortoises are discovered within the construction area, they shall be relocated by an authorized biologist based on the Desert Tortoise Relocation Plan.
- All construction activities shall be confined to the designated work areas. Grubbing of vegetation shall only be to the extent necessary for construction and shall be limited to areas designated for that. An authorized biologist(s) shall be present during all initial brushing or grading activities within the project area. Overnight parking and storage of equipment and materials would be limited to previously disturbed areas or areas identified in the BLM ROW grant.
- All vehicle traffic shall be restricted to existing roads or land management agency approved newly constructed roads. The Holder shall ensure that cross-country travel for construction purposes outside of the areas of desert tortoise fencing is prohibited.
- Construction vehicles within sensitive species habitat shall not exceed 15 miles per hour.
- A litter-control program shall be implemented during construction. The program shall include the use of covered, raven-proof trash receptacles, daily removal of trash from work areas to the trash receptacles, and proper disposal of trash in a designated solid waste disposal facility. Precautions shall also be taken to prevent trash from blowing out of construction vehicles.
- No pets or firearms shall be permitted in the work area.
- Both pre- and post-construction photographs shall be taken to document sensitive habitat conditions within the limits of project disturbance.

**17.42.** To avoid the introduction or spread of Invasive, Non-Native weeds into uninfected areas, the holder will incorporate the following measures into the project plans and specifications:

- Use only certified, weed-free, imported erosion-control materials (or rice straw in upland areas).
- Coordinate with BLM field offices to ensure that the appropriate best BMPs are implemented.

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of invasive, non-native weed species.
- Clean equipment at designated wash stations before and after entering the project construction area.
- An invasive, non-native weed species survey of the project right-of-way, including temporary work areas, shall be completed prior to initiating project construction. All areas disturbed by the project shall be surveyed using approximately 30-foot meandering transects. Populations of invasive, non-native weed species shall be identified and mapped using global positioning systems (GPS).
- Develop an approved Invasive Weed Species Monitoring and Treatment Plan to detect and treat any noxious invasive, non-native weed species in the construction area. The plan shall include methods for monitoring, treating, and reporting invasive, non-native weed species infestations within the construction area. The Invasive Weed Species Monitoring and Treatment Plan shall be drafted and submitted to BLM prior to initiating construction.

**17.43.** The holder shall, clearly stake and flag the work zone prior to construction. During the environmental training program, construction personnel shall be informed about the importance of avoiding ground-disturbing activities outside the designated work area. During construction, the construction monitors and resource monitors shall ensure that construction equipment and associated activities avoid any disturbance of native vegetation and sensitive resources outside the designated work zones. Contaminant run-off shall be contained within the temporary construction boundaries and clean-up efforts shall be initiated immediately. Clean-up procedures shall be coordinated with the responsible agency to insure additional resource damage does not occur.

**17.44.** The Applicant shall restore disturbed areas of native vegetation to preconstruction site conditions. To ensure that effects on native plant species and communities are not long-term, the Applicant shall stockpile and immediately replace native topsoil within the Project right-of-way, and reestablish natural site topography (including necessary amendments to soil structure) to allow natural colonization of plant species.

In California and Nevada, all succulents within the limits of disturbance will be relocated either off the alignment onto undeveloped BLM administered public lands or maintained within a temporary nursery (located within the ROW) and replanted within the ROW as part of site restoration activities.

In areas that require immediate stabilization, nonvegetative techniques that allow native species to reestablish can be used, including use of weed- and disease-free mulch, erosion blankets, or rolled organic fiber material.

Erosion control seed mixes may be necessary on selected sites. If sites need to be stabilized through seeding, the seed mix would be composed entirely of native and

locally occurring species appropriate for stabilizing local site conditions. All seed mixes will be approved by the BLM, NPS, and CDFG prior to initiating restoration activities. Special attention will be given to erosion control near ephemeral drainages and within playas.

The holder shall determine site-specific erosion control measures (non-vegetation or mechanical techniques) in consultation with a vegetation specialist and Project engineer.

- 17.45.** The Applicant shall remove native topsoil from areas of permanent disturbance and stockpile within the right-of-way. To avoid altering local hydrologic conditions or flood flows, spoils materials shall not be placed in sensitive habitat areas or within or adjacent to ephemeral drainages. Prior to disturbance, native topsoil shall be excavated and stockpiled for later reapplication in native vegetation areas. Separate stockpiling areas shall be identified and clearly marked for each different vegetation type as appropriate. The exact depths shall be determined for each native vegetation type and depend upon the stratigraphy and soil profiles (estimated to be 6-12 inches in depth). The excavated soil depths shall exceed the restored soil depths to allow for soil compaction during placement. The stockpiled soil shall not be covered to minimize damage to propagation material from heated soil conditions but it shall be protected from construction activity and signed to identify it as a protected resource.
- 17.46.** The Holder shall be responsible for restoring the natural site topography to pre-project contours. The restored topography will mimic the pre-project condition to the greatest extent possible. Minor modifications may be required to conform with post-project site condition. Construction area soil compaction will be treated using grubbing, raking, and other BLM approved soil decompaction techniques as part of the project restoration. Proper compaction of the subsurface material and plow furrows is necessary to help prevent surface and subsurface migration of water along the plow or trench furrow, and to prevent trench settlement. The reapplied topsoil in the ROW will be left in roughened condition to facilitate the establishment of vegetation and reduce the potential for erosion. Excessive passes of finish grading equipment that would compact topsoil will be avoided. Upon completion of the grading operations, no further vehicular traffic will be allowed, other than necessary mitigation planting equipment.
- 17.47.** The holder shall prepare and implement an erosion control and restoration plan to control short-term and long-term erosion and sedimentation effects and to restore soils and native vegetation in areas affected by construction activities. The plan shall include requirements of applicable erosion control ordinances and grading permits and shall implement best management practices (BMPs) for erosion and sediment control as necessary. The erosion control plan shall be drafted and submitted to the BLM prior to initiating construction.

In areas that require immediate stabilization, non-vegetative techniques that allow native species to reestablish can be used, including use of weed- and disease-free

mulch, erosion blankets, or rolled organic fiber material. The use of such measures shall be identified in the SWPPP or recommended by a soil or civil engineer based on slope, soil type, or other site factors as necessary and may be required later in the design phase.

- 17.48.** The Applicant shall obtain a Tree or Plant Removal Permit from San Bernardino County and the Nevada Division of Forestry. This permit is issued in compliance with San Bernardino County Development Code Subsection 88.01.050 for removal of regulated plants. The Applicant shall comply with all provisions of the Permit. A permit shall be required from the Nevada Division of Forestry and/or the BLM in order to relocate succulents within the Project alignment. The Applicant shall also comply with the California Desert Native Desert Plants Act, consistent with pertinent BLM regulations.
- 17.49.** The Holder shall compensate for the loss of Sensitive Vegetation Communities prior to initiating construction. Compensation ratios shall be based on site-specific information and determined through coordination with state and Federal agencies (CDFG and the U.S. Army Corp of Engineers (USACE) and BLM). This site-specific information will supplement the executed studies for the Preferred Alternative, including the 2010 botanical survey in California near Mountain Pass (included as Appendix F-N to this Final EIS). Compensation should be provided at a minimum 1:1 ratio (1 acre restored or created for every 1 acre removed/disturbed) and may be a combination of onsite restoration/creation, offsite restoration, or mitigation credits. The Holder shall develop and implement a restoration and monitoring plan that describes enhancement of sensitive communities, creation, and monitoring over a select time period.
- 17.50.** The holder shall mark specific areas of important riparian vegetation shall be marked with orange fencing and the limits of disturbance narrowed to reduce effects to sensitive vegetation where the rail alignment crosses the Mojave River.
- 17.51.** To the extent possible, the Applicant shall design the Project to avoid special-status plant populations, updating design-build Project plans accordingly. The Applicant shall comply with the minimum survey and mitigation standards as required by BLM Manual 6840-1. Where avoidance is infeasible, the Applicant shall focus on minimizing the width of construction work areas in and around special-status plant populations. Before construction, special-status plant populations shall be demarcated with temporary orange construction fencing and posted as a restricted area. Depending on the proximity of the populations to the construction work area, populations shall be monitored to ensure adverse effects on special-status plant populations are avoided. If effects on special-status plant populations are unavoidable, the Applicant shall compensate for Adverse Effects on Special-Status Plant Populations.
- 17.52.** If effects on a special-status plant population are unavoidable, the holder shall coordinate with the United States Fish and Wildlife Service (USFWS) and California

department of Fish and Game (CDFG) to determine the appropriate mitigation strategy. If affected plants are listed under the Federal Endangered Species Act (ESA), the appropriate take permits would be obtained from USFWS. Currently accepted mitigation of impacts on special-status plants includes acquisition and preservation of nearby occupied habitat, or habitat creation at a ratio determined by the regulatory agency. Transplantation of affected populations is not considered a viable mitigation option. Creation of habitats with high levels of endemism, such as vernal pools, is effective only with stringent agency management guidelines. The holder shall coordinate with USFWS to develop an effective mitigation and monitoring plan for specific vernal pool plants in conjunction with the construction of compensatory vernal pool habitat. Alternatively, the holder could acquire and preserve nearby high-quality occupied habitat, with the holder responsible for the long-term habitat management.

- 17.53.** The holder shall develop a Desert Tortoise Relocation Plan in conjunction with the United States Fish and Wildlife Service (USFWS) Southern Nevada and Ventura Ecological Services Offices, the BLM, and the California Department of Fish and Game. The relocation plan shall outline procedures and protocols to follow when tortoises need to be relocated out of the areas of disturbance. The relocation plans shall include:
- Clearance procedures for construction areas;
  - Relocation procedures;
  - Procedures for determining the health of tortoises;
  - Relocation areas;
  - Methods that will be used to manage and protect relocation areas;
  - Monitoring for short and long term success of the plan; and
  - Permitted activities.
- 17.54.** The holder shall ensure that no more than 90 days after the completion of construction, the monitoring biologists prepare a report for the United States Fish and Wildlife Service (USFWS), the BLM, and appropriate state agencies. The report shall include the effectiveness of mitigation measures, the results of preconstruction and construction monitoring including the number of desert tortoises excavated and moved.
- 17.55.** The holder, in accordance with the United States Fish and Wildlife Service (USFWS) guidance, shall pay mitigation fees for disturbance to Desert Tortoise habitat on BLM administered public lands in Nevada.
- 17.56.** The holder shall provide compensation for the permanent loss of desert tortoise habitat. Compensation for loss of habitat in California shall be provided by the holder according to requirements of the BLM, the United States Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (CDFG). Current requirements for loss of desert tortoise habitat are based on a formula of 5:1 inside Desert Wildlife Management Areas (DWMAs) and 1:1 outside of DWMAs.

For the purposes of the project, changes to the compensation formula must be reviewed and approved by the USFWS, the BLM, and the CDFG.

For Project-related loss of habitat in Nevada, the holder shall follow the mitigation measures outlined by the Regional USFWS Ecological Office for the protection of desert tortoises.

- 17.57.** The Holder shall install culverts under the proposed railroad line that match existing I-15 or Union Pacific Railroad (UPRR) culverts. Where the project deviates from existing transportation facilities, the Holder shall install culverts adequately designed to serve as wildlife crossings at natural drainage features and at appropriate intervals to allow for wildlife passage, including, but not limited to, desert tortoises and other wildlife to pass under the proposed rail alignment. The project design shall ensure flow for natural drainages equal to or greater than four feet in width (as measured by the distance between the ordinary high water mark on each side of the drainage) during Preferred Alternative construction or operation in order to reduce potential effects to wildlife movement, including, but not limited to, desert tortoise and desert bighorn sheep. The culverts and fencing would be designed and spacing determined through coordination with USFWS, NPS, BLM, CDFG, the Nevada Department of Wildlife (NDOW), and EPA to ensure they meet agency wildlife standards. Exclusion fencing shall be constructed parallel to the rail line and would direct tortoises and other wildlife species to the culverts.
- 17.58.** If Mohave ground squirrels are determined to be present in the Project area, the holder shall purchase compensatory lands to mitigate for the permanent loss of suitable habitat. Acreage of suitable habitats that shall be permanently affected by the segments alignments, associated stations, and operation and maintenance facilities was presented in Draft EIS Table 3.3-11. The mitigation ratios and the location of the compensatory lands shall be determined through coordination with the California Department of Fish and Game (CDFG) pursuant to Section 2081.
- 17.59.** If burrowing owls are detected within 250 feet of proposed construction within the project area, the holder shall implement the following:
- Occupied burrows will not be disturbed during the nesting season (February 1 through August 31).
  - If avoidance is the preferred method of dealing with potential effects, no disturbance should occur within 160 feet of occupied burrows during the non-breeding season or within 250 feet during the breeding season.

If destruction of occupied burrows is unavoidable during the non-nesting season (September 1– January 31), passive relocation techniques (e.g., installing one-way doors at burrow entrances) shall be used instead of trapping and active relocation. At least 1 week will be necessary to accomplish passive relocation and allow owls to acclimate to alternate burrows. Unsuitable burrows that will not be destroyed in the vicinity of the project shall be enhanced (enlarged or cleared of debris).